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ABSTRACT

The papers in this document, written by persons from a variety of disciplines, are addressed to issues which have confronted vocational educators for many years and which remain unsolved as the decade of the 70's begins. Specific topics include: (1) "Curriculum Response to Occupational Trends" by Garth Mangum, (2) "Changing Relationships Between Schools and Industry" by Samuel M. Burt, (3) "Staffing Vocational-Technical Programs" by Rupert Evans, (4) "Vocational Education for Disadvantaged Groups" by Laure Sharp, (5) "Comprehensive Education, Redefined for a Humanist Society" by Marvin Feldman, and (6) "Lessons from Other Countries" by Norman Duffy. (GEB)

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VOCATIONAL EDUCATION: TODAY AND TOMORROW

edited by
Gerald G. Somers
and
J. Kenneth Little

Center for Studies in Vocational
and Technical Education
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Chapter 1

INTRODUCTION

Gerald G. Somers

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Chapter 1

INTRODUCTION

Gerald G. Somers

This volume takes its place in a lengthy tradition. It is addressed to issues which have confronted vocational educators for many years and which remain essentially unresolved as we enter the decade of the 1970s. The durability of the problems gives evidence of their complexity and fills some with a sense of despair. However, as medical research attests, the mere intractability of a problem is no justification for abandoning efforts to resolve it. If the issue is important enough, like cancer or heart disease, a lengthy list of past failures must not discourage the expenditure of even greater efforts and resources on research and study.

The Questions Facing Vocational Education

Like major medical problems, some of the pressing issues confronting vocational education are sufficiently important to warrant greater attention in spite of their persistence. Many of the questions discussed and analyzed by the authors of this volume were recognized in the advisory report which preceded the Vocational Education Act of 1963. However, the failure of that Act to meet the problems can be seen in the renewed recognition given to many of the same issues by the Advisory Council on Vocational Education in its report of 1968. Even though the Vocational Education Act of 1968, which faithfully reflected many of the concerns of the Advisory Council, made a concerted effort to meet these issues head on, lack of funding and other obstacles prevented major progress in meeting vocational education's traditional problems.

What are these problems? Most of those familiar with the field would agree on the following:

1. What should be the relationship between vocational education and general education? Should some type of occupational preparation be part of the educational experience of all youth, and if so, what kind, and at what level in the educational system should this take place?

2. What should be the relationship between vocational education and training for employment in specific occupations and industries? What are the appropriate roles of the schools, on-the-job training, apprenticeship programs, work-study and work experience programs?

3. To what extent should the objective of vocational education be to (a) meet the needs of the labor market, (b) meet the needs of the individual? Assuming that labor market and community needs have a special influence in vocational education, what should be the role of community-industry advisory councils? How are they best organized and utilized in assisting vocational education planning and policy?

4. Given consideration for the individual as well as labor market needs, how can counseling and placement activities best serve the objectives of vocational-technical education?

5. What should be the posture of vocational education toward the disadvantaged? How does it relate to general manpower programs? Should funds and permanent authority be provided to develop and operate new and expanded programs specifically designed for persons who have academic, social, economic, or other disadvantages?

6. How should vocational education be staffed? What provisions should be made for teacher education institutes, fellowships, leaves of absence, internships, exchange of personnel between industry, education, and government to meet the peculiar criteria for academic and practical experience of vocational educators?

7. How should vocational and technical education be organized and administered? What is the appropriate role of the U.S. Commissioner of Education, of State Boards of Education, of State Boards of Vocational and Technical Education, of local authorities? How much stress should be given to area vocational schools and residential vocational and technical schools? What part of federal funds allocated to the states should be used for programs in secondary, post-secondary, and adult education institutions?

8. What is the appropriate role of research, evaluation, and experimentation in shaping the direction of vocational education and in fashioning its curricula and organization?

The essays in this volume are addressed to these and ancillary questions. In keeping with the interdisciplinary and critical approach of The Center for Studies in Vocational and Technical Education, which has sponsored the volume, the answers are not always those which professional vocational educators would wish to see. Economists, psychologists, and sociologists are sometimes impatient with vocational education when they look at the needs of the individual and the society in the light of the promise and delivery of the vocational education system. However, the authors of this volume also include a number who have made their careers in vocational and technical education, and they are fully capable of explaining and justifying the role of vocational education while giving stress to new departures and hopes for the future.

Some Crucial Issues

Although many can agree on the "long list" of questions concerning vocational education, there is less consensus on a short list. And yet an effort must be made to establish priorities. At the risk of over-simplication, it is suggested that there are three key issues, closely related to each other. At one end of the spectrum is the relationship of vocational and technical education to general education at the elementary, high school, and higher educational levels. At the other end of the spectrum is the relationship of vocational education to manpower programs, especially for the hard-core unemployed, the poor, and the disadvantaged. In between the role of vocational education as a part of general education and its role as a device for aiding the disadvantaged is the relationship of vocational education to industrial training programs. Whereas "respectability" lies with a closer integration of vocational education and general education, especially at the higher levels, some of the pressing needs of the time lie in the direction of special programs for the disadvantaged. Since the training of workers for employment, whether they be disadvantaged or not, requires close liaison with industry, the appropriate jurisdiction between vocational education and industrial training will remain a critical issue, even as vocational educators look more fondly at their potential status in junior and technical colleges.

These issues have come to the fore in the latter months of 1969 and the beginning of 1970 because of the proposed Manpower Training Act. In introducing the proposed legislation, the Secretary of Labor stated, "Through this legislation we hope to lay the foundation for a comprehensive national manpower system—one that can serve the needs of the individual and afford the states and localities a major role in manpower training and program administration." Similar legislation, stressing the coordination and decategorization of manpower training and other manpower programs, as well as some decentralization of functions, has been proposed by Democratic and Republican congressmen. As a result of these legislative proposals, a lively debate has developed between vocational educators and the representatives of the Department of Labor.

For the moment at least, the lengthier list of issues has been reduced to a few pressing ones. Vocational educators have expressed concern over the policy objectives and implementation of the proposed legislation. The competing roles of vocational education and institutional training on the one hand and various manpower and training programs of the Department of Labor on the other have been crystallized. Arguments have arisen over the administrative relationship between the Department of Labor and the Department of Health, Education, and Welfare at the federal level, and between vocational educators, the Employment Service, and manpower agencies at the state and local levels. Although there has long been a question of coordination between institutional training at vocational schools and on-the-job training in industry, the newly proposed legislation has given an urgency to the debate; and regardless of the outcome of the legislation, a sharp light has been focused on issues which have long needed critical examination.

Under a comprehensive manpower policy, the Employment Service is given a crucial role in the planning and execution of manpower training programs. Questions arise concerning the cooperation between the Employment Service and vocational educators in assessing labor market needs and in the placement of trainees. In spite of the strictures of the Vocational Education Acts of 1963 and 1968, there has been only limited cooperation between vocational education and those agencies of the Department of Labor which are expected to play a leading role in labor market analysis and job placement. If the Employment Service is to be given a central role in manpower training, can this be effectively accomplished if the Employment Service and the principal vocational training institutions go their separate ways?

While many vocational educators have looked longingly toward integration with general education, especially at the higher levels, they have now been faced with the threat of an expansive system of vocational training which bypasses their institutions. Crucial to the discussion is the question of how best to help the disadvantaged. The Vocational Education Act of 1968 has ascribed a major role in this field to the vocational schools. And yet, the proposed manpower legislation advocates a comprehensive system of training, especially for the disadvantaged, which provides no specified role for vocational education institutions.

The new manpower training programs have also highlighted the traditional issue of vocational education versus on-the-job training. Programs sponsored under the Manpower Development and Training Act witnessed a marked shift from institutional training at the beginning of the 1960s to on-the-job training at the end of the decade. The proposed comprehensive manpower policy would undoubtedly continue to give a critical place to on-the-job training in industry. Here, too, long-standing questions can no longer be evaded. Who should be trained in vocational schools and who should be trained on the job? Are vocational educators spending public funds in training workers who should be trained by private employers at private expense? Are government manpower funds being used to subsidize employers in training workers for specific, short-term jobs which cannot serve as a substitute for fundamental, long-term vocational training in community schools? Is skill training for many of the disadvantaged really necessary, or can their absorption into the labor market be equally well served by short-term counseling, job placement programs, work orientation, or work experience?

Socioeconomic changes and legislative proposals force vocational educators to take a less leisurely look at their appropriate jurisdictional role in the spectrum of educational, training, and manpower programs. What is the comparative advantage of vocational education relative to industrial training programs and the manpower policies of the Department of Labor? This question must be answered soon, not only for the future of vocational education, but also for the achievement of the most effective social and educational policy in our society. What persons can benefit more from vocational education than from on-the-job training or short-term manpower policies? What skills, what occupations, what curricula are more suited to vocational education than to the alternative, and often competing, forms of manpower development?

These are questions to which vocational educators must address themselves. It is the premise of this volume, however, that the questions are too important to be left wholly to vocational educators. They call for the best thinking of the best people in a variety of disciplines.

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Chapter 2

CHANGING GOALS

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Chapter 2

CHANGING GOALS

Melvin L. Barlow

The intrinsic value of vocational education lies in its relationship to the social and economic development of the nation. It has often been said that the greatness of the nation is not its tremendous wealth but its ability to utilize its human resources wisely. Vocational education is a social process concerned primarily with people and their part in doing the work that society needs done; it is concerned with preparing people for work and with improving the work potential of the labor force. For people, this means economic independence, self-realization, and dignity. Their work results in production of the goods and services needed by a dynamic society.

A century ago the primary ingredients needed by people who wanted to enter the labor force were a willingness to work, a strong back, and a modicum of education. But with the passage of time, society has changed. We have moved from the farm into the factory, we have become better educated, we have become better fed, and the result of our productive labor has produced an affluence among people in general which is without precedent in any other society.

Man always has had to find the means of transferring his accumulated vocational and technical knowledge to the newer generations and has had to update this knowledge in keeping with social and economic progress. During most of the nineteenth century this transfer of knowledge was accomplished by private effort: manual labor schools, lyceums, mechanics institutes, agricultural societies, corporation schools, mercantile groups, and a variety of special schools. In general, if mechanics, farmers, or merchants needed to learn or to improve their skills and knowledge, they did it by their own efforts. It was their problem and they found ways to meet their needs.

Technology has changed the nature of our contemporary problem in vocational and technical education. The basic employment question—what can you do?—has caused significant changes in direction and content of the national program of vocational education. In order to see clearly how the goals of vocational education have changed, it is necessary to review briefly the drives which created the vocational movement in education during the early years of the twentieth century.

The Vocational Drive

During the late years of the nineteenth century, trade schools, business schools, agricultural schools, and other schools offering practical instruction leading to employment sprang up across the nation. Most of them were privately-sponsored, but a few public schools began to experiment with a new kind of practical education. New subject matter called commercial arts, business arts, manual training, and cooking and sewing made their debut and struggled for existence in the curriculum of the public schools.

Some educational leaders looked toward a diversified curriculum as a means of satisfying a variety of student interests; others regarded the intrusion of such new subject matter as noneducation and a blight upon the educational process. A long verbal struggle developed among educational theorists concerning the educational value of the practical subjects. Despite great difficulties, the practical arts continued to grow. The "faculties" which education was supposed to develop became the province of the practical subjects as well as of other disciplines.

Although the practical subjects were intended to be an integral part of a person's general education, a few educational leaders observed that many students were using the skills and knowledge to acquire a job in the world of work. These leaders said, in effect, "These school experiences also have vocational value. Instead of developing vocational competencies accidentally, let's do it on purpose." So, a professional society was formed to provide a sounding board concerning the proper development of vocational education.

This professional group, the National Society for the Promotion of Industrial Education, held its first meeting in 1906. Persons from nearly every walk of life were involved in the dialogue about the need for vocational education. College presidents and federal, state, and local government officials as well as representatives of labor, women's clubs, teachers, bankers, business leaders, church groups, the

NAACP, agriculturists, and many others joined in the study of a planned vocational educational experience leading to employment.

It was determined early that vocational preparation was a problem national in scope, that it was a public problem, that it applied to both boys and girls, and that its introduction into the public schools would not only supply a need for "educated labor," but would "democratize" the public education system. The social values of vocational education were stressed in the Congress and in educational and community meetings throughout the nation. Its citizenship value was recognized, and it was thought to be a wise business investment and a means of helping youth to become self-dependent. Speaking in the Senate about the citizenship potential of vocational education, Senator Carroll S. Page, one of the champions of vocational education, said that he believed "that this can be done [achieve good citizenship] in no way so well as by vocational education—indeed it is probable that there is no other way in which it can be done at all."[1]

Out of all the dialogue, from 1906 until 1917, emerged the principles upon which vocational education should be based. It is interesting to note that as early as 1907, the NSPIE indicated that vocational education programs should be "open to all; sex, creed, color or nationality should not debar anyone."[2]

Although the area of education encompassed by the term "vocational" was instruction that led to employment, the early leaders did not conceive of vocational education as narrow in any sense. About its social value there was no question: such instruction would in fact supply a social need, and the economic reward and industrial efficiency which resulted would be in harmony with national goals.

It is beyond the purpose of this chapter to delineate all of the facts of this fabulous early history of vocational education. National support was achieved in 1917 and was subsequently supplemented at various times by grants from the Congress. A review of the background and the growth of the program over a fifty-year period leads to the emergence of a conceptual structure of vocational education which will be useful in understanding the nature of its changing goals.

A Conceptual Structure

Vocational education had been under study for about eleven years before the Smith-Hughes Act was passed in 1917. The leaders of the

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[1] *Congressional Record*, July 24, 1916, p. 13266.

[2] National Society for the Promotion of Industrial Education, *Bulletin No. 3* (1907), p. 7.

National Society for the Promotion of Industrial Education were determined that the need for vocational education should be considered from many points of view. They wanted to build the foundation of vocational education from substantial ingredients, and it is interesting to note that the NSPIE, an organization with the avowed purpose of seeking federal aid for vocational education, did not support the vocational education bill in Congress in 1908 because the leaders felt the subject had not been sufficiently investigated to establish the real need.

Over the years the National Society in its many bulletins and annual meetings set up a number of discussion bases around particular facets of vocational education. People from all over the nation participated generously. Little by little, fundamentals came into focus. Many of these fundamentals were general in nature, but in later years the Society considered in great depth such items as teacher education. The principles of vocational education were determined during that period of study and discussion, and still represent the essence of the vocational education movement.[3]

Since the vocational education movement developed as a social process, it seems reasonable that as social conditions change, the principles of vocational education must, from time to time, be reinterpreted to reflect contemporary social and economic conditions. The Smith-Hughes Act in 1917, the first interpretation of vocational education principles, was given wide visibility in the familiar *Vocational Education Bulletin No. 1*, published by the Federal Board for Vocational Education in 1917.

Later interpretations occurred with the vocational education laws in 1936, 1946, 1963, and 1968. In 1963, the interpretations were influenced strongly by the technological revolution; the 1968 interpretations reflected the deep concern about socioeconomic conditions throughout the nation. As social and economic conditions change in the future, it will be necessary to make other interpretations which can serve as appropriate guidelines.

So, in the general plan of interpretation of principles, the first step is the basic law. The second step is the refinement of the law into a policy manual which becomes a guide for conducting programs. The policy bulletins, first issued by the Federal Board for Vocational Education and later by the U.S. Office of Education, represent a consensus based upon experiences in vocational education and a rational assessment of social and economic conditions. The initial publication was the 1917 policy bulletin; it was revised in 1922, 1926,

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[3] See *Bulletins* of the National Society for the Promotion of Industrial Education, 1906-17.

1937, 1948, 1958, 1962, and 1966. The new revision will reflect the provisions of the Vocational Education Amendments of 1968.

Once policy has been determined, it is necessary to provide for *implementation* through the state plans for vocational education, and other implementation guides published by the states. State implementation guides provide suggestions to school districts and define operating standards to be used by schools in developing vocational education programs.

The structure of vocational education which now emerges is: (1) foundation principles; (2) interpretation of principles; and (3) implementation of principles. This structure has been characteristic of vocational education for more than a half-century and represents a convenient means of keeping the programs close to the people served and to the work they do. Changing goals of vocational education are reflected in *interpretation* and *implementation*, providing an opportunity for almost complete freedom to react to changing social and economic needs to the extent that policy-makers are able to perceive these changing needs. In no sense does the structure standardize the vocational education program to such an extent that freedom of local school systems is circumscribed.

In order to clarify further the conceptual structure of vocational education, three basic elements should be emphasized. First, vocational education is a national concern. Mobility of labor, which was clearly evident during the early 1900s, the formative years of vocational education, continues to be a national problem. We are a nation on the move, and the movement, which follows no particular pattern, depends in a great part upon the whims of people and upon economic opportunity. The situation is merely representative of the freedom of choice enjoyed by the people of the nation, which the founders of the vocational education movement sought to protect by advocating national legislation. The national legislation was never intended to effect "federal control"; rather the intent was to provide *standards* which would protect national interests and provide for the mobility of labor.

The second basic element was cooperative planning. In order for vocational education to be representative of real needs, it was imperative that *all* persons concerned with it should be involved with planning the program. This meant management and labor, employee and employer, the school and the community. Advisory committees, an innovation of vocational education, took part in program planning from the beginning. Such committees were either national, state, or local, depending upon the nature of the problem at hand. Much of the success of vocational education over the years can be traced directly to effective planning based upon the advice of a variety of representative groups of people. It is interesting to note that community involvement, about which there is current national concern, has been a functional part of vocational education for more than a half-century.

The third basic element is a combination of state and local control. Vocational education was conceived as a public responsibility and as a part of public education. Consequently it is a function of the state, in the same way that education in general is a function of the state. Responsibility for it is local. In the final analysis the success of vocational education depends primarily upon local control and initiative.

Thus conceptual structure of vocational education takes into account the mobility of people and provides for cooperative planning within the framework of public education.

The nature of the changing goals of vocational education depends largely upon the results of discussion by deliberative bodies. The first national group to give attention to vocational education was the Commission on National Aid to Vocational Education, appointed by President Wilson in 1914. The next substantial national effort was the work of the Panel of Consultants on Vocational Education, appointed by President Kennedy in 1961.

The Panel of Consultants on Vocational Education

The Panel of Consultants on Vocational Education conducted its study at a period of time when a new technology was making a vivid impression upon the nation, and when the sharp pangs of hard-core unemployment were being felt throughout the land. President Kennedy's charge to the Panel was to review the national program and to make recommendations for the improvement and redirection of vocational education. The Panel was equal to the task.

The Panel members felt strongly that vocational education should serve more people, in school and out of school, and that the scope of occupational preparation should be broader. "Making vocational education more available" were key words in the Panel's study. Broadening the occupational scope of vocational education made it possible to change from certain prescribed areas to all occupational areas, except a few occupations classified as professional or which required a baccalaureate degree. This change gave attention to new emerging occupations which had been ignored previously. What the Panel said, in a sense, was, "If a vocational training need exists—take care of it! Don't worry if the occupational area does not fit into existing occupational classifications in vocational education."

It was quite obvious that youth and adults could not enroll in vocational education programs that were not offered. Wide variations existed among the states and local communities in their concern about vocational preparation. Enrollment in vocational education, in 1962, varied from a high of 49.4 per 1,000 population to a low of 5.0 per 1,000 population, with a national average of 21.1.[4]

Small schools offered programs different from those of large schools; some schools offered nothing at all. In a spot check of 3,733 schools it was found that only 63.8 percent offered one or more vocational education programs. The lack of availability of vocational education programs was more an indictment of the schools and the public than of vocational education. The necessity for public education to make a commitment to offer vocational education was clear. Thus the Panel took the position that:

> Every citizen should have the opportunity to attain occupational competencies compatible with his abilities and interests. The size and scope of the vocational education program should meet the qualitative and quantitative needs of the Nation for trained workers, in a time of rapid technological change, economic growth, and international challenge.[5]

The Panel identified many needs for change and improvement in vocational education and chose to identify the people to be served as the focus of the future program:

1. High school age youth.
2. Youth with special needs.
3. Post-high school youth and adults.
4. Youth and adults at work or unemployed.

In addition, the Panel recognized the need for a variety of valuable services such as administration, supervision, teacher education, and vocational guidance, with special programs for youth groups and others.

The new focus simply reflected an adjustment in the *interpretation* of the *principles* of vocational education in order to respond more appropriately to social and economic need. Because of the national scope of vocational education, the Panel recommended a federal investment of $400 million per year.[6]

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[4] U.S. Department of Health, Education, and Welfare, Office of Education, *Education for a Changing World of Work*, OE 8-0021 (Washington: U.S. Government Printing Office, 1963).

[5] Ibid., p. 66.

[6] When the Panel presented its report to President Kennedy at the White House on November 27, 1962, the President remarked that $400 million was not much money.

The report of the Panel of Consultants on Vocational Education summarized the most substantial study ever made of vocational education. It represented new hope for, and faith in, the potential of vocational education to serve the American people and to inject new levels of quality into the work they did.

The Vocational Education Act of 1963

Late in December 1962, before the Panel's report was available in printed form, members of Congress were using typewritten copies of the report as a guide as they worked on vocational education legislation. The first bills were introduced in January 1963; revised versions were introduced later. Both the Senate and the House of Representatives held Committee hearings, from which two different versions of the vocational education bill emerged. At length a conference committee adjusted the differences and on December 12, 1963, the House passed the bill. The following day the bill was passed in the Senate, and on December 18 President Johnson signed the Vocational Education Act of 1963.[7]

The Act had many attractive dimensions, including operational flexibility. The declaration of purpose tells the story:

> It is the purpose of this part to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State—those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps—will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.[8]

A number of new elements in the program did in fact represent change. Vocational education, research-starved for fifty years, needed research along a broad continuum, and the Act provided that 10 percent of the money appropriated for vocational education would be used for research. Provision was also made for the construction of vocational education facilities with an emphasis upon area service, as well as for remodeling, expansion, and alteration of existing buildings. Buildings to house new vocational education programs were needed desperately, and although the money available for such purposes was not large, it did represent a start.

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[7] For a more complete discussion of the legislation, see Melvin L. Barlow, *History of Industrial Education in the United States* (Peoria: Chas. A. Bennett Co., 1967), ch. 15, and Douglas E. Kliever, *Vocational Education Act of 1963: A Case Study in Legislation* (Washington: American Vocational Association, 1965).

[8] P.L. 88-210, December 18, 1963.

The Act provided for "area vocational schools," a concept which represented an effort of the Panel to focus attention upon the need to move away from school district boundary restrictions which tend to block some students from attending vocational education programs. The area vocational school was a method to extend vocational education opportunities to students from districts too small to develop effective vocational education programs on their own.

Work-study programs were provided to help the vocational student who needed financial aid. Various types of "earn and learn" programs had been used to motivate the student to delay his entrance into the world of work until such time as he could become prepared for a better position. It was known that even a small amount of money—not as a gift, but as pay for performing a service—would be attractive to many needy students.

The new law incorporated certain temporary legislation as a permanent part of the Act and provided for the development of residential schools. Included also was a section prohibiting federal control of programs. Fear of federal control had long been expressed, and the specific prohibition was, therefore, an explicit statement of federal policy on this point.

Two features were exceedingly important for long-term improvement in vocational education. The first of these was an Advisory Council on Vocational Education. This Council was advisory to the U.S. Commissioner of Education concerning policy matters arising from the administration of the Act. It was anticipated that the new Act would stimulate the growth of the vocational education program and that a variety of new situations would be generated about which the Commissioner could use the judgment of an informed group outside the U.S. Office of Education. The second long-term improvement feature was a provision for periodic review of vocational education programs and laws. The new Act specified that the Secretary of Health, Education, and Welfare should appoint an Advisory Council on Vocational Education in 1966, and that the Council should make a review and report its findings to the Secretary, and then to the President and Congress, not later than January 1, 1968. Furthermore, such periodic reviews were to be continued at intervals not to exceed five years.

The Advisory Council idea was exceedingly important in terms of developing a clear focus upon changing goals of vocational education, to keep abreast of social and economic change and to provide for new needs.

Growth and Development, 1963-68

The Vocational Education Act of 1963 represented, in many respects, an abrupt departure from previous practice. When the bill was under discussion, one of the members of the Panel, a vocational educator of some years of experience and maturity, remarked, "This scares hell out of me, but I think it will work!" The remark implied a sudden realization of both the broadened scope of vocational education and the extensive task of planning needed to implement the new goals.

When one considers the fact that the new Act opened up the whole area of post-secondary education—generally two years beyond high school—and specifically pointed to the necessity to seek out students who had fallen between the cracks in the educational program of the high school, or who had become school dropouts, the task was staggering indeed. Add to this new task the removal of previous occupational barriers so that the vocational program could include a wide variety of occupational preparation, the potential for change was great.[9] The Panel predicted that the current enrollment of four million students would double in a short period of time, and it did. The 1968 enrollment was in the neighborhood of eight million students.

As mentioned previously, the Panel was greatly concerned about the lack of availability of vocational education and was determined that occupational instruction be brought within the reach of a much larger group of people. The wording of a portion of the statement of the purposes of the Act expressed this idea: ". . . so that persons of all ages in all communities . . ." may realize the benefits of the Act. These words imply the broadest possible coverage; no one is left out. The potential for change concerning groups of people was unlimited.

What about the actual program? The new Act stated, ". . . to maintain, extend, and improve existing programs of vocational education . . . ," which was a recognition of the need for and the value of the contemporary vocational education. But the Act went on to say, ". . . to develop new programs of vocational education." The intent was clear: to *secure* the previous gains, and to open the door to occupational areas not previously included.[10]

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[9] In some respects the idea of "previous occupational barriers" was somewhat mythical. The George-Barden Act did permit extensive change, and detailed data analysis provided evidence of such change. However, the opportunities for such change in the George-Barden Act were not clearly evident. The Vocational Education Act of 1963 simply made such opportunity completely understandable to all.

During 1967 a sampling of new programs developed under the Vocational Education Act of 1963 indicated that 109 school districts, scattered throughout the United States, had introduced 683 new programs. Analysis of these "new" programs indicated that a majority were in the old familiar categories, but they were indeed "new" to the districts reporting. Thus, thousands of students *for the first time* had an opportunity to prepare for jobs that did in fact exist. Truly, the goal of increasing the availability of vocational education had become a reality. In addition, many "new" programs reflected the influence of the technological revolution (electronics, for example) and the growing needs in health occupations. Nevertheless, the growth and development of vocational education, although significant, did not measure up to anticipated gains.

Assessment of the nature of the growth and development during the period 1963-68 was handicapped by two major factors. First, funds under the Act were not available until mid-September 1964. To be eligible for funds, states had to have state plans approved to reflect provisions of the new Act and not all states had their plans approved during the fiscal year 1965. Second, data for fiscal year 1965 did not reflect the full impact of the Act. Data for fiscal year 1966 were available for study, but only tentative data were available for fiscal year 1967 when a national depth study of vocational education was undertaken.

Another factor affecting goal achievement under the 1963 Vocational Education Act was that the Congress did not authorize the full amount of funds recommended by the Panel to carry out the provisions of the Act. The Panel recommended $400 million, but the Congress provided only $283 million.

Despite the limitations, the program developed in the direction planned and at least some progress was made in implementing the goals of vocational education as visualized by the Vocational Education Act of 1963. Five years later, in 1967, the Advisory Council on Vocational Education completed a study and made recommendations that designated new emphases and set new goals.

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[10] Actual identification of occupational areas covered was limited considerably by the recording procedures used by the U.S. Office of Education which did not make it possible to identify specifically the wide range of occupations covered. Consequently the nature of the trends in developing new occupations was masked by the necessity to group occupations to fit the number of lines on the data recording page. New recording procedures will eliminate this problem for future data analysis.

The Advisory Council on Vocational Education

Recognizing the necessity for periodic review of vocational education, the Panel of Consultants on Vocational Education recommended the provisions for the Advisory Council on Vocational Education which were written into the Vocational Education Act of 1963. National needs and goals were too pressing to be satisfied by the slow process of natural change in educational systems. Late in November 1966, President Johnson announced the appointment of the Advisory Council; as chairman he named Dr. Martin Essex, State Superintendent of Public Instruction of Ohio.[11]

The Advisory Council on Vocational Education approached its work in a manner different from that of the earlier Panel of Consultants. In 1962 few people had ever heard of Watts, and Cleveland, Detroit, and Trenton were just names of cities. The impact of the social disturbances in these and other cities and the relationship of these disturbances to social and economic conditions provided new and deep social concern about the role of vocational training and education in ameliorating these conditions. The relationship to vocational education of such problems as unemployment, disadvantaged groups, ethnic groups, divergent cultural backgrounds, poverty, deficient housing, poor home environment, crime, disease, delinquency, illegitimacy, broken families, and minority group concentrations were discussed frequently by the Council.

The advice and counsel of well over a hundred national professional organizations was sought, and their points of view occupied the attention of the Council in terms of the direction that change should take—change in the scope and function of vocational education. Small groups of knowledgeable individuals met with the Council's staff to work out better solutions for a number of particular problems. At length the sum total of these ideas for change fell into place, and the Council's final recommendations state a philosophy and provide concrete proposals for the role of vocational education in alleviating societal ills.

Exemplary Programs

It was apparent to the Council that youth must begin early in their educational careers to think of themselves in the world of work. They need to learn about the work society requires, and this learning needs to be removed from the textbook and film stage into the world of work itself. The world of work and community activities in general represent a laboratory for education, and the Council urged generous use of these resources. It encouraged schools to try something different—to move out into a new world of teaching and learning and to make education relevant to the processes of daily life. Inherent in the nature of these new and creative programs were the underlying themes of vocational guidance and career planning.

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[11] See the report of the Advisory Council on Vocational Education for general information and biographical sketches of the twelve members of the Council: *Vocational Education: The Bridge Between Man and His Work* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968).

Disadvantaged Groups

The Council considered at length the plight of students in school who fall into the category of the "disadvantaged" for ethnic, cultural, economic, and other reasons. These persons are not getting their fair share of the educational program because of conditions over which they have no control, and they are apt to fall between the cracks in the educational structure. The effect upon their ultimate role in the world of work is negative, and the chances are very good that unless their educational problem is solved, they will not find their most appropriate place later in the labor force of the nation. The Council urged special attention for such groups.

Other Concerns

Throughout its deliberations the Council examined a variety of highly important programs in its search for better ways of preparing people for the labor force. Work-study programs, for example, had been shown to be of great value by providing needy students with opportunities to earn money while they were attending school.

Cooperative work-experience programs had always paid off in a variety of ways. The student was able to combine his work experience and his school program so that each supplemented the other. The student was paid for his service in business and industry and the experience gave him first hand information about the actual world of work because he became a part of it.

Residential vocational school facilities might be one answer to the problem. Some students need to move out of unfortunate home environments, and if residential facilities were available, thousands of youth who would otherwise not have such opportunity could be in school. The stories from some of the residential schools in operation were indeed success stories for most of the students. The idea had already been tried and was working; it needed only to be extended so that youth nationwide could have such advantages.

Leadership development, particularly through graduate study, was desperately needed, and the Council stressed such development as a special need in vocational education. Another suggestion was an exchange program of vocational educators and leaders in business and industry, which has many advantages toward improvement of the vocational education program by bringing it into closer relationship with the reality of the world of work.

The Panel of Consultants had visualized an expanded role for vocational education, but the Council further extended the goals of vocational education and recommended the removal of many previous restrictions. It now became a matter of the creative endeavors of educators to develop programs to achieve the new goals.

American Vocational Association

An examination of the changing goals of vocational education would not be complete without recounting the influence and role of the principal professional organization of vocational educators. Without the work of this organization we would not have today a vocational education program of any particular significance. In order to understand the role of American Vocational Association it is necessary to go back to an earlier day and to the first association.

The National Society for the Promotion of Industrial Education was founded in 1906 for the purpose of developing a national program of vocational education. The work of NSPIE during the years 1906-17 culminated in the passage of the first vocational education legislation, the Smith-Hughes Act, in 1917. During the years prior to the passage of the Act, the Society surveyed opinion, consulted with leaders in the Congress and throughout the nation, and worked out the details of a program with representatives of the various states, with business, industry, and agriculture, and with persons representing a generous cross section of American life. In 1914, NSPIE was honored by the appointment of its secretary, Charles A. Prosser, to the Commission on National Aid to Vocational Education.

Throughout the entire period Charles Prosser was the prime mover and worked out the details of proper legislation with Samuel Gompers of the American Federation of Labor and the various representatives of business, industry, and agriculture. They were supported by members of Congress including Senator Carroll S. Page, Senator Hoke Smith, and Representative Dudley M. Hughes.

In 1917, the Society changed its name to the National Society for Vocational Education, and in 1925 it joined the Vocational Education Association of the Middle West to form the American Vocational Association.

The principal focus of the AVA has been to create change in education through national and state legislation, and the Association was prominently identified with the enactment of vocational education legislation: the George-Ellzey Act in 1929, the George-Reed Act in 1934, the George-Deen Act in 1936, and the George-Barden Act in 1946. The Association has traditionally represented the profession to the Congress, and the Congress has sought the advice and suggestions of the AVA and has placed value upon such information as indicative of the "state of the nation" as far as vocational education is concerned. The Association also has developed a strong working relationship with all professional organizations and groups who have direct or related interests in the development of vocational education.

In December 1960, a committee of the AVA called on the Secretary of Health, Education, and Welfare to urge that a national study of vocational education be made. It was quite apparent to the Association that the recent rapid developments in science and in technology, the emergence of new kinds of occupations, and the increasing educational requirements for work in general demanded a new role for vocational education in the contemporary social and economic structure. In February 1961, President Kennedy, in his message to Congress on education, announced the formation of a Panel of Consultants on Vocational Education for the purpose of reviewing the structure of vocational education and recommending new legislation to bring the role of vocational education into proper focus with the needs of the day.

Throughout the work of the Panel, the AVA was closely involved in developing the bases for the changing goals of vocational education. Upon completion of the Panel's work, the Association was instrumental in bringing a vast cross section of vocational educators and representatives of business and industry to provide testimony for the committees of Congress concerned with vocational education legislation.

The AVA has been in the vanguard of change for a half-century. Emphasis upon vocational guidance in the thirties, the technical education programs and the area schools of the late 1950s, and the residential schools of the 1960s have all had their start in the promotional phases of the professional work of the AVA. Its focus has always been on people and the work they do, and when the Panel sought to emphasize the "people" aspect in the 1963 legislation, the AVA was a strong supporter of the concept because it was central to the task of vocational education throughout the nation.

The AVA has been instrumental in going beyond the walls of the classroom and securing the involvement of business, agriculture, industry, and labor in many new relationships with vocational education. Finally, a host of special programs for youth groups owe their existence to the early development work of the AVA.

How Have the Goals Changed?

In terms of people, vocational education is concerned with their initial preparation for work and with improvement of their skills and knowledge as workers. In terms of work, vocational education is concerned with all kinds of work except that which is classified as professional and which requires a baccalaureate or higher degree. Therefore, when we think about changing goals of vocational education, we must think about changes relative to the people served and to the range of occupations involved.

In 1917 the key principles were (1) educational programs under public supervision and control, and (2) programs which prepared persons for useful employment. The "Statement of Policies" of the Federal Board for Vocational Education, *Bulletin No. 1*, 1917, indicates that the people to receive the benefits of instruction were:

1. Boys and girls who, having selected a vocation, desire preparation for entering it as wage earners.
2. Boys and girls who, having already taken up a wage-earning employment, seek greater efficiency in that employment.
3. Wage earners established in their trade or occupation, who wish through increase in their efficiency and wage-earning capacity to advance to positions of responsibility.[12]

Essentially this meant high school programs for in-school youth and extension, or continuing education programs, for employed persons. The exact statement of the Federal Board in *Bulletin No. 1* was as follows:

> The Federal board desires to emphasize the fact that vocational schools and classes are not fostered under the Smith-Hughes Act for the purpose of giving instruction to the backward, deficient, incorrigible, or otherwise subnormal individuals; but that such schools and classes are to be established and maintained for the clearly avowed purpose of giving thorough vocational instruction to healthy, normal individuals to the end that they may be prepared for profitable and efficient employment. Such education should command the best efforts of normal boys and girls.[13]

Many states operated "industrial schools" as a part of their prison systems, and the policy statement made it plain that vocational education funds were not to be directed toward the support of these schools. Most students of high school age did not go to high school, and the vocational education program was designed as a "carrot out in front" to keep some of the serious-minded students in school. In short, the program was directed toward students who were willing to continue their high school studies and would spend at least half of their time at school in vocational preparation classes. Although a high school diploma represented a passport to occupational security in 1917, it was not particularly a requirement for employment.

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[12] Federal Board for Vocational Education, *Statement of Policies, Bulletin No. 1* (Washington: U.S. Government Printing Office, 1917).

[13] Ibid.

By any measure, the vocational education program proposed in the Smith-Hughes Act did in fact fit the social and economic needs of the day. The Act was hailed as the great democratizer of education, and it was indeed a step forward in bringing education to more people.

Fifty years passed during which the nation experienced two world wars, a great depression, and a scientific revolution. The population of the nation doubled, nearly all youth of high school age attended high school, less than 2 percent of all persons over 14 years of age were unable to read and write any language, poverty was still an acute problem for too many people and ninety million people performed the work of society. By any measure, the changes have been nothing less than fantastic.

During these years the vocational education program has become very large, enrolling more than eight million persons in 1968—one out of every twenty-five people in the nation. The need for vocational education has also changed. In 1917 it was a good idea, but not essential since most people could go to work then without too much preparation. Today people without some special training are finding it increasingly difficult to obtain work. Vocational education has become a necessity in the contemporary growing national economy.

During these same fifty years, the Congress passed five Acts related to vocational education. Each reflected changes in the social, economic, and technological climate of the nation. The last of these Acts—the Vocational Education Amendments of 1968—is based upon the judgment and experience of a large group of experts in many fields.

But, to return to our fundamental question, how have the goals of vocational education changed? It has been pointed out previously than in its basic principles vocational education has not changed; the change has occurred in its relation to the people concerned and in the scope of occupations covered.

In 1917 the target groups were high school students and employed persons. Vocational education in 1968 includes:

High school students—perhaps up to 70 percent of such students.

High school students handicapped by ethnic burdens.

High school students who need financial aid.

High school students who have educational handicaps.

Students of high school age who are not in school.

Residential facilities to make vocational education available to more students—including student subsidy if needed.

Exploratory activities for younger youth to acquaint them with the realities of the world of work.

Exemplary programs combining school and community activities for all youth.

Students in post-high school programs.

Youth of post-high school age who are not in school.

Employed persons.

Unemployed persons.

Persons who need retraining.

Special programs for the imperfectly employed and improperly employed.

Programs for disadvantaged adults of all ages which will enable them to participate satisfactorily in the labor force.

All people, youth and adults, except those who are preparing for occupations which are classified as professional and which require a baccalaureate or higher degree.

In 1917 the occupations for which preparation was to be provided could be described discretely as agriculture, home economics, or trades and industries. The scope was expanded later to include distributive occupations, and much later to include technical education. The Panel of Consultants, in 1961-62, found these occupational descriptions to be much too restrictive—too many people who needed preparation for occupations in other fields did not have opportunities available. The Advisory Council in 1966-67 concurred with the Panel's views and recommended that vocational education programs not be restricted to defined occupational fields.

The 1968 legislation says that *all* occupations are to be included within the realm of vocational education, excepting only those which are classified as professional and which require a baccalaureate or higher degree as basic preparation. This means that 90 percent or more of all occupations in which people work to provide the goods and services which society needs are included within the purview of vocational education. In terms of occupational programs this means:

Long-term, one or two years, in high school.

Long-term, one to two years, in post-high school institutions.

Programs that fit the school schedule and programs that do not.

Short-term programs to meet a particular occupational need.

Programs that tend to fit the "cluster" or "family of occupations" concept.

> Programs that upgrade, update, and extend the knowledge of the worker in rapidly changing occupations.
>
> Programs of any length for any socially useful occupation and at any time of the day, week, or year.

The whole story of change is found in the words of the declaration of purpose of the Vocational Education Amendments of 1968:

> . . . so that persons of all ages in all communities of the State . . . will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.[14]

The new amendments represent the ultimate in flexibility. In effect, no one is eliminated and all occupations are included. This major change in the scope of vocational education, as expressed in federal legislation, is a response to major changes in the society and economy of the nation.

Change and the Future

Vocational education needed to change. The Panel and the Council proposed the scope and direction of change, and the recommendations are in harmony with the historic principles of vocational education. A basic point, which is not so well known or so readily admitted, is that education in general must change also.

Despite the fact that the major statements of the purposes of education, during the past half-century, have recognized vocational preparation as essential in the totality of education, the educational practice has all but ignored the student as a future worker. To be sure, much of present education does contribute to the posture of a worker in contemporary society, but this alone is *not* salable in the labor market. The employer wants to know what a worker can do. He accepts as a matter of course that the "doing" will be accompanied by acceptable social behavior. Focus upon the "good life," the "good citizen," and "self-fulfillment" does not benefit the individual in an economic sense until he also possesses skills that are salable in the labor market.

It is not the purpose of this chapter to debate the long-standing issues of whether college education has been oversold in the nation. College is one of the places where vocational preparation takes place. However, more than 70 percent of the youth in high school are enrolled in a college preparatory program even though less than 10 percent of the occupations require such preparation.

It is the purpose of this chapter to suggest that change in vocational education alone, regardless of how sophisticated it may be, will not be sufficient to meet the vocational needs of society unless and until there are major changes in the total educational structure.

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[14] P.L. 90-576.

Schools in the future must provide the occupational skills and related information needed for all people who seek employment and for all people who are employed or unemployed. Students who cannot read or write well, who have failed to achieve occupationally acceptable communication skills including mathematics achievement, and who know little about the world of work and seem to have little inclination to enter the labor force pose special problems for vocational education programs and to vocational educators. Schools have tended to reject large numbers of students who must now be served; students must be helped to succeed in the studies which are essential for civic participation and which are also basic to vocational success.

Change in the future at both the high school and the post-high school levels must provide a new kind of relationship between the subject matter of the nonvocational program and the vocational program. At present there are few, if any, good patterns to follow, but there is evidence that patterns can be developed which would emphasize the needs of the individual students and place less stress on fixed points of time required for gaining competence. Predetermined standards and programs unrelated to the important goals of the students would also be eliminated, and credit would be given for learning accomplished outside the classroom.

Restructuring educational programs will be a difficult task. Whether or not change will occur depends upon the collective will of parents, faculty, administration, and school boards. The pressure of economic developments and the growing need for skills and competency in the labor force will continue to be felt.

One element of change that looms large in the future is the growth in the number of adults needing occupational training. Lifelong learning will become increasingly significant in the educational ventures of the future.

The Vocational Education Amendments of 1968 are a mandate from the Congress to the people of the nation to expand and improve programs of occupational training, not vocational education as an independent entity, but as a valuable part of and in concert with the total educational resources. This is a challenge for public education. If the challenge is unheeded, new programs under a variety of auspices may arise to meet the needs of the future.

Summary

Vocational education developed during the early years of the twentieth century as a response to social and economic need. A drive to develop a vocational component in education was strong and was supported most by management, labor, industry, business, and agriculture, and least by education.

The founders of the movement, who were representative of the general culture of America, spent a number of years developing the basic constructs of vocational education. The fundamental principles are sound. However, it is necessary from time to time to reinterpret the principles in terms of contemporary social and economic need and then to implement new programs based upon the new interpretations.

In 1961-62, pressure of a technological revolution led President Kennedy to appoint a Panel of Consultants on Vocational Education to study the design of vocational education. The Panel's report was used by the Congress in the formulation of the Vocational Education Act of 1963. In many respects the Act was new and daring, focusing attention upon making vocational education more generally available and upon the people to be served.

A significant growth in enrollment in vocational education followed the 1963 Act. For the first time programs for vocational education in post-high school institutions were encouraged generously, and the flexibility of the Act made it possible for vocational education to develop in many new environments. Provision for research brought many new persons and institutions into the field of vocational education.

A provision of the 1963 Act made it mandatory that an Advisory Council be appointed to review the vocational education program after five years, and accordingly the Advisory Council on Vocational Education was appointed by President Johnson late in November 1966. The Council's report, *Vocational Education: The Bridge Between Man and His Work*, was used by the Congress in formulating the Vocational Education Amendments of 1968, which became law on October 16, 1968. The new law authorized a vast expansion in vocational education, was designed for maximum flexibility, and was dedicated to providing vocational education to all youth and adults of the nation.

Did the goals of vocational education change? Most certainly! The major changes were reflected in the number of persons to be served and in the scope of occupational coverage. As it stands at the beginning of 1971, vocational education can meet the needs of more than 90 percent of the people who comprise the labor force. The future development of vocational education is limited only by our ability to perceive vocational education needs and to plan programs to meet these needs, and by the funds available to accomplish the goals.

Despite all of the vast changes, the basic principles of vocational education remain essentially unchanged—a tribute to the careful analysis and planning of the creators of the vocational education movement fifty years ago.

Chapter 3

CURRICULUM REPONSE TO OCCUPATIONAL TRENDS

Garth L. Mangum

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Chapter 3

CURRICULUM RESPONSE TO OCCUPATIONAL TRENDS

Garth L. Mangum

That vocational education curricula should respond to labor market trends and projections of manpower requirements may appear self-evident. However, that conclusion implies certain assumptions about the objectives and philosophy of vocational education that merit examination.

The major message of the report of the Panel of Consultants on Vocational Education which led to the formulation and passage of the Vocational Education Act of 1963 was that the vocational education system had not been adequately responsive to changes in the labor market and the needs of various segments of the population. Specifically, enrollments were too small, services to the urban population were grossly insufficient, placement and follow-up were almost nonexistent, occupational offerings were too limited, research and evaluation had been neglected, and post-secondary instruction was insignificant. But of most concern to the Panel, training appeared to be heavily concentrated in declining occupations while new and growing occupations were not being explored, curriculum and instructional materials were not being developed for new occupations, and overly selective schools were ignoring the socially, economically, and academically disadvantaged.[1] Emphasis on obsolete and declining skills was a major theme.

In contrast, it is significant that the 1967 Advisory Council on Vocational Education criticized the system for not responding to the

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[1] U.S. Department of Health, Education, and Welfare, Office of Education, *Education for a Changing World of Work,* Report of the Panel of Consultants on Vocational Education (Washington: U.S. Government Printing Office, 1963), pp. 206-14.

1963 directives and philosophy but gave relatively little attention to the occupational structure of training. It treated the issue calmly, reporting a mixed picture of some, though not enough, response.[2] Failure to emphasize the special needs of the disadvantaged was the primary criticism. In part, this relative calmness may have indicated improvement in the curriculum's response to occupational trends. It may also be that the issue itself was of declining significance.

The following section records changes in the philosophy and objectives of vocational education and reflects upon their implications for responsiveness to labor market trends. The second section examines the extent to which the curricula have responded to both labor market trends and the 1963 legislative directives. A following section appraises the mechanisms which have been created to speed that responsiveness. The chapter ends with some speculations concerning the implications of these developments for future plans in vocational education.

The Philosophy and Objectives of Vocational Education

The combination of the 1963 Act and its 1968 amendments represents a profound shift in the legislatively-declared philosophy of vocational education, setting new objectives and requiring different responses. The congressional declarations both lead and follow changes in philosophy and practice at the administrative and teaching levels. As in any transition, inconsistent objectives coexist and persist. Responses vary depending upon the degree of commitment to the varying philosophies.

As a product of advancing industrialization in an economy where most jobs still required limited skills, the primary objectives of the Smith-Hughes Act of 1917 was apparently to encourage training in specific occupational categories to meet the needs of the labor market. This philosophy persisted through all subsequent vocational education legislation until 1963, as new categories were merely added to the original three. Both legislation and practice were subject to criticism whenever the predominance in these chosen categories failed to reflect existing occupational trends.

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[2] U.S. Department of Health, Education, and Welfare, Office of Education, *Vocational Education: The Bridge Between Man and His Work, Publication 1, Highlights and Recommendations from the General Report of the Advisory Council on Vocational Education, 1968* (mimeo). Reprinted in Rupert N. Evans, Garth L. Magnum, and Otto Pragan, *Education for Employment: The Background and Potential of the 1968 Vocational Education Amendments,* Institute of Labor and Industrial Relations Policy Paper No. 14 (Ann Arbor, Mich.: The Institute, 1969), pp. 22-26.

The declaration of the Vocational Education Act of 1963 that the priority objective would no longer be training for specific skill categories but preparation of various labor force groups for successful employment had deeper significance than was at first apparent. By implication, the test of the appropriateness of training was no longer to be, "Was the skill in high and growing demand?", but "Did the individual get the job of his choice and prosper in it?" Not that training for obsolete skills was contemplated. The difference was a matter of emphasis, with training for successful employment the primary goal and meeting skill requirements a means to that end.

Efforts were made in the Acts, by directive in 1963 and by cash authorization in 1968, to bring into direct collaboration labor market analysts, forecasters, and education planners. However, the question never clearly answered was, "What if the individual chooses to train for a declining skill, competing with incumbents to fill one of the falling number of replacement slots?" Within this context the test of whether vocational education had done its job was dependent upon the success of the trainee in his chosen employment.

In practice, of course, the philosophy probably could not be carried that far. A specific course could not be established to meet the demands of one student. Course offerings would be, at best, the joint products of student and employer demand. An occupation would not be offered if employers and students did not demand it. It would disappear, regardless of employer needs, if an inadequate number of students enrolled. Nevertheless, the principle was clear: the students' welfare, not that of the employer or the labor market, was to be paramount. If the labor market were unable to get its needs fulfilled, all it had to do was to readjust the reward system to make the demanded occupations more attractive.

Also reflecting this concern for meeting the employment needs of people rather than the skill needs of the labor market was a redefinition of vocational education flowing through the two acts during the 1960s. The new emphasis was not just training for certain occupations but preparation for employment in a broader sense, not just "recognized occupations" but "new and emerging ones," and not just skills training but remedial or related academic and technical instruction as well as preparation for enrollment in advanced technical education.

Among the various groups for whom high quality vocational education was to be available, special attention was to be directed to the disadvantaged and handicapped for whom special techniques and supportive services would be necessary to enable them to achieve satisfactory employment. The transition from school to work had to be somehow improved to reduce youth unemployment. These concerns led to the inclusion of "placement" in the definition of vocational education, the advent of work-study "earmarked" funding of cooperative education, residential schooling for the urban bound rural youth and the homeless city dweller, consumer education for the mother in the low income home, special training for those filling the dual role of homemaker and wage earner, and extension of education for employment backwards into the junior high and elementary grades for the disadvantaged as well as forward into the post-secondary years for all.

It was never clear, even with skill training in high-demand occupations as the primary goal, just what information about existing and projected labor market demands would be useful for vocational education planning. With skill training now only one of several means for achieving the objective of successful employment, the need for and use of projections is even less clear. Approaches to planning vary by personality and practical constraints as well as by the availability of information. Constraints are provided by political and financial realities. It was not lack of information that continued the relative overinvestment in vocational agriculture and home economics, nor is it lack of information that makes it difficult to shift from traditional to emerging occupations. Overinvestment in vocational agriculture persists, in part, because there is a vested bureaucracy extending from the land-grant colleges through the state boards of vocational education to the vo-ag instructor and the Future Farmers of America. More important, farm parents and farm youth find the skills immediately useful, even though the youth does not expect to devote his life to farming. But perhaps most important of all is the fact that in a small rural high school, farm-related occupations may be the only ones in which there is sufficient general interest to allow any economies of scale. Vested interests and the existence of classrooms and equipment are equally constraining in other occupations.

High enrollments in home economics were never secret. They represented a long-term commitment that homemaking was woman's most appropriate career. The 1963 Act moved slightly away from that position in assigning at least 10 percent of home economics activity to gainful occupations. The 1968 Amendments moved part way back by stressing consumer education and homemaking for the poor and training in the dual role of homemaker and wage earner for those so engaged. There were strictures of the law that until 1963 prevented federal support of training in office occupations (though almost as much was occurring under state aegis) and until 1968 required limitation to "recognized" as opposed to "emerging" occupations.

The fact that most state vocational education agencies are still structured according to the occupational categories established by Smith-Hughes and other pre-1963 acts is another built-in impediment to change. Principals and instructors report having innovative proposals turned down because they did not fit within the occupational structure of the state office or because they were "not in the state Plan." But almost by definition, employment opportunities in traditional occupations are likely to be both larger and more certain than those in an emerging area. Few would trade the near-certainty of employment upon graduation, even if followed by obsolescence, for the absence of employment now but its likelihood some time in the future.

Some vocational educators when criticized for training in obsolete skills query, "How can we know what courses to offer [illegible]il you tell us what skills will be in demand?" Others respond pragmatically, "We offer those courses the business community will support politically, the legislature will support financially, the state board will endorse and for which the students will enroll." Traditional occupations in persistent demand (auto mechanics, for instance) will usually absorb all the funds available and provide a steady source of growth and replacement jobs.

Some consider manpower projections vital to the design of physical plant. A few educators, along with most economists, would probably react that the scarcer the funds and the fewer the numbers, the more important that the scarce resources be invested in training for the highest priority occupations. To the concern that buildings require a long-range planning commitment, others reply, "Let the architects give us buildings without interior walls that can respond to changing needs as, rather than before, they occur."

The changing objectives do not settle any of these arguments, but they certainly affect them. Factors are involved which both decrease and increase the need for forecasts of the occupational structure. Preparation for employment involves good mental and physical health; a commitment that work is inherently good and is the most appropriate source of income; the basic skills of communication and computation and science; a knowledge of the fundamentals of good work habits and acceptance of discipline; and the information and the ability to make a wise vocational choice. Vocational training has always included supporting general education knowledge and work habits, but the emphasis has been the occupational skill. As theoretical content and analytical ability rise in importance relative to job skills, this relationship tends to be reversed. As this occurs, preparation for work may be less susceptible to change and the need for projections may decline to the same degree.

As an offsetting factor, training for emerging occupations, by definition, requires more foresight than does training for traditional ones. Orientation to the world of work in the elementary school makes little demand on projections. The greater emphasis upon secondary institutions increases the specificity of the training but shortens the lead time required. Emphasizing the disadvantaged poses the temptation to prepare them only for entry level skills requiring little foresight rather than to attempt to take them from where they are to where the advantaged are also headed, lengthening the time horizons necessary. Cooperative education must be attuned to current demand. Placement activities, if formally undertaken, would provide a client test of current relevance but would have little impact on the need for projections.

In contrast to these forces which, in the net, probably decrease the relative importance of projections in education planning, the new long-range state plan design of the 1968 Act requires projections. This caused one highly competent state director to remark, "Now we have one clear need for projections. We must have them to please the 'feds'."

Current Responses

What use vocational education planners make of available manpower projections, whether they need more, what they need, and whether and how they would use the information if they had it are still unanswered but researchable questions. It is possible to find some indications of the extent to which current enrollments accord with current employment and available projections. It is necessary to caution that, for a variety of reasons, no more than indications are possible. Correspondence does not necessarily imply a causal relationship. The general scarcity of regional and local projections and state and local enrollments by occupational title prevent any assessment of geographical match. The U.S. Office of Education's categorization of occupations for instruction purposes, the categories used by the Bureau of the Census and the Bureau of Labor Statistics for counting and projecting, and those chosen by the Bureau of Employment Security for its counseling and placement-oriented *Dictionary of Occupational Titles* differ by structure and purpose.

Significant progress is now being made toward a common taxonomy. Preliminary results of those efforts can be used as an indication of correspondence between projections and enrollments. However, considerable judgment is still necessary to match up the categories.

There are also categories among projections for which there are no instructional categories, and vice versa. Since the future is always more like the present than different from it, responding to current employer and student demand is likely to produce a rough correspondence to what projections would dictate. The following should be taken only as a general indicator of the relationship between expected demand and the response of vocational education as a source of supply.

Projected and Training Occupations

Table 3-1 illustrates the relationship between 1966 employment, average annual openings 1966-75, fiscal 1967 vocational education enrollments, 1967 completions, and 1967 training-related placements. No information is available as to alternative sources of supply, but experience indicates that the jobs will be filled whether vocational education or any other formal training source provides the skills. The reliance on apprenticeship accounts for the low enrollments in crafts such as the building trades and tool and die making. For other occupations, there are no self-evident criteria for establishing priorities among occupations which have completion rates far under average annual openings. The divergence between projected demand and vocational education output appears greatest for associate degree nurses and nursing assistants, medical technologists, law enforcement officers, firemen, barbers, and most occupations for which post-secondary but less than college training is the customary preparation. As broad occupational categories, health occupations and technical occupations appear furthest below the demand levels.

Enrollments and completions for food service workers, general merchandise clerks, blacksmiths, auto body and fender repairmen, automobile mechanics, and those trained in the graphic arts appear to be excessive in relation to demand. Most of these are secondary level enrollees, however, having no commitment to the occupation and little to the labor force. Therefore, high enrollments need not lead to oversupply.

Familiar occupations of long-standing popularity in vocational education—automotive sales, financial and credit, real estate, and transportation occupations in distributive education; stenographers and typists in office occupations; airplane mechanics, electrical occupations, drafting, machine shop, sheet metal, welding, and shoe repair in trade and industrial occupations—all have enrollments which, in relation to average annual openings, would lead one to expect an oversupply were it not for the low completion rates. Computer programming and hotel occupations are new enough that, though their

TABLE 3-1. Comparison of Employment, Projected Annual Openings, Enrollments, Completions, and Placements for Vocational Education Occupational Training Programs

Instructional Program	Employment 1966	Average Annual Openings 1966-75[1]	Vocational Education Enrollment 1966-67[1]	Vocational Education Completions 1967[1]		Vocational Education Placements 1967[1]
				Total	Post-Secondary	
HEALTH OCCUPATIONS	2,030,900 (1,882,000)[1]	203,400	117,073	31,065	23,464	27,900
Dental assisting	93,000	7,700	6,762	2,042	903	
Dental hygiene	15,000	2,000	1,312	452	452	
Dental laboratory tech.	25,000	1,700	1,337	257	189	
Medical lab. assisting	90,000	8,400	4,818	1,044	749	
Nursing	630,000	61,000	9,934	2,280	2,056	
Practical Nursing	300,000	39,000	58,721	18,711	16,420	
Nursing assistance	700,000	77,000	22,802	4,588	1,039	
Radiological technology	72,000	6,300	1,683	475	383	
Optician	7,000	300	257	118	77	
TECHNICAL OCCUPATIONS	2,238,100 (2,134,000)[1]	187,300	249,825	28,224	19,861	14,800
Engineering related tech.	885,000	72,000	5,277	691	336	
Scientific data processing	100,000	13,600	26,367	3,989	2,731	
Commercial pilot training	80,000	7,200	4,401	202	202	
Police	300,000	18,000	3,391	206	206	

Table 3-1 (Cont'd)

Instructional Program	Employment 1966	Average Annual Openings 1966-75[a]	Vocational Education Enrollment 1966-67[b]	Vocational Education Completions 1967[c]		Vocational Education Placements 1967[d]
				Total	Post-Secondary	
DISTRIBUTIVE OCCUPATIONS	11,902,000 (2,092,000)[e]	159,100	481,314	118,584	38,567	32,200
Advertising services	158,000	11,000	4,224	1,096	450	
Automotive	218,000	7,000	11,834	5,151	52	
Finance & credit	280,000	25,000	23,074	4,010	1,079	
Food distribution	255,000	10,000	34,747	11,345	666	
Food service	43,000	2,800	33,389	4,871	54	
General merchandise	43,000	3,600	62,263	15,096	773	
Hotel & lodging	280,000	18,000	14,115	2,505	428	
Insurance	400,000	43,000	11,105	1,231	531	
Real estate	215,000	16,000	58,036	8,591	8,246	
Transportation	200,000	5,000	10,902	1,878	711	
OFFICE OCCUPATIONS	9,953,000 (7,180,000)[e]	555,000	1,580,441	423,243	73,717	137,800
Business data processing	120,000	14,000	85,063	5,442	2,271	
Personnel training, etc.	100,000	6,200	1,806	366	61	
Stenographic secretarial	2,400,000	175,000	904,602	154,976	31,574	
Typing, etc.	715,000	60,000	222,649	27,988	3,701	

Table 3-1 (Cont'd)

Instructional Program	Employment 1966	Average Annual Openings 1966-75[a]	Vocational Education Enrollment 1966-67[b]	Vocational Education Completions 1967[c] Total	Post-Secondary	Vocational Education Placements 1967[d]
TRADES & INDUSTRIAL OCCUPATIONS	14,283,700 (11,588,200)[e]	577,500	1,483,584	151,275	28,829	71,100
Air conditioning	80,000	3,500	23,176	2,009	568	
Appliance repair	195,000	10,000	4,270	865	156	
Automotive body & fender	95,000	3,700	16,007	3,748	799	
Automobile mechanics	580,000	20,000	103,200	25,191	4,165	
Aircraft maintenance	130,000	6,500	18,491	1,304	590	
Aircraft operations	7,200	500	5,587	746	39	
Ground operations	14,000	400	2,605	217	212	
Business machine maintenace	80,000	3,700	1,284	317	112	
Commercial art occupations	60,000	2,200	10,828	2,151	600	
Maritime occupations	190,000	2,000	2,653	143	66	
Commercial photography	30,000	1,300	6,576	957	294	
Carpentry	850,000	32,000	46,211	7,177	795	
Electricity	175,000	8,400	32,282	2,206	525	
Operation, heavy equipment	275,000	16,000	2,859	168	124	
Masonry	200,000	10,850	19,965	3,825	323	
Painting & decorating	460,000	13,050	6,547	512	111	
Plastering	80,000	3,300	606	8	—	

Table 3-1 (Cont'd)

Instructional Program	Employment 1966	Average Annual Openings 1966-75[a]	Vocational Education Enrollment 1966-67[b]	Vocational Education Completions 1967[c]		Vocational Education Placements 1967[d]
				Total	Post-Secondary	
TRADES & INDUSTRIAL OCCUPATIONS						
Plumbing & pipefitting	350,000	16,000	31,988	805	121	
Construction and maintenance trades	300,000	15,000	14,726	2,934	92	
Custodial services	1,000,000	80,000	20,538	569	92	
Diesel mechanic	76,000	4,000	4,955	935	528	
Drafting	270,000	16,000	63,167	9,448	2,494	
Electrical occupations	240,000	7,500	17,291	2,023	542	
Lineman	35,000	1,100	30,907	91	76	
Communications	209,000	9,000	6,612	736	147	
Graphic arts	310,000	8,000	34,405	7,300	1,272	
Instrument maintenance and repair	80,000	4,500	3,448	571	365	
Machine shop	900,000	27,000	72,497	11,445	1,378	
Sheet metal	55,000	2,100	20,245	1,668	348	
Welding & cutting	460,000	23,000	79,330	6,524	2,632	
Metalworking	15,000	600	12,355	1,473	......	
Barbering	205,000	12,000	4,888	449	333	
Cosmetology	450,000	43,000	30,088	8,416	2,011	
Fire training	183,000	10,000	128,789	172	170	
Waiter/waitress	970,000	64,000	2,313	725	46	

Table 3-1 (Cont'd)

Instructional Program	Employment 1966	Average Annual Openings 1966-75[a]	Vocational Education Enrollment 1966-67[b]	Vocational Education Completions 1967[c] Total	Post-Secondary	Vocational Education Placements 1967[d]
TRADES & INDUSTRIAL OCCUPATIONS						
Stationary energy sources	305,000	9,000	2,959	46	24	
Pumping plants	23,000	1,500	282	2	......	
Shoe repair	30,000	1,200	3,760	369	43	
Upholstering	40,000	1,000	7,444	650	280	

[a] Department of Labor *Occupational Outlook* projections to 1975 including employment increases and estimated replacement for death and retirement.

[b] U. S. Office of Education data from state reports for fiscal 1967. Enrollments by program title do not necessarily add to totals for broad occupational training category because of adjustments to correlate program titles with employment projections.

[c] U. S. Office of Education data from state reports of completions during academic year 1966-67.

[d] Placements reported by state as of September 1967 for fiscal 1967 completers.

[e] Number employed in the category who are included in occupations covered by *Occupational Outlook* projections and therefore more appropriate than the total employment for comparison with projected openings.

enrollments are relatively high compared to openings, their completions are not. Commercial art and photography are examples of occupational training often taken for intrinsic value aside from employment.

These comparisons reflect a reasonably good fit for familiar occupations, general underenrollment for many emerging and expanding occupations, and possible over-rapid expansion of some of the more exotic of the newer ones. Even vocational agriculture enrollments do not exceed the number of openings, including off-farm occupations. Home economics enrollments do not exceed the number of potential housewives. The issue in these two categories (not included in Table 1) is one of priorities. Health and technical occupations appear to be the major categories needing expansion, but they also appear to need reallocation, say from practical nurses to two-year nurses and health technologists and from electronic to engineering technologists. Yet it may be unrealistic utilization of labor that creates the apparent discrepancy in occupations such as nursing where, for instance, the more briefly-trained practical nurse may be adequate to meet actual needs.

These indications of the relation between vocational education curricula and the occupational trends ignore an important category —expanding occupations, the skill requirements of which are appropriate for vocational training but in which no vocational education courses were reported in 1967. Examples are environmental health occupations, various medical technologies, floristry, systems and budget analysis, quality control clerks, and traffic rate clerks.

Health occupations were 1.3 percent of total enrollments in 1964 and 1.6 percent in 1967 (Table 3-2). Technical occupations actually declined relatively from 5 to 4 percent between 1964 and 1967. Office occupations were not reported in 1964 but were 22 percent of all enrollments by 1967. Home economics dropped from 44 percent of all enrollments and 61 percent of secondary enrollments in 1964 to 31 and 42 percent, respectively, in 1967. Only 3 percent of all home economics enrollments and 1.5 percent of secondary home economics enrollments were training for gainful occupations. Vocational agriculture enrollments declined from 19 to 13 percent of the total between 1964 and 1967. Vocational agriculture was 15 percent of secondary enrollments in 1967 with 16 percent of its total enrollments and 20 percent of its secondary enrollments in off-farm agriculture-related occupations.

The Focus of Vocational Education

A comparison of the availability for placement and the actual

TABLE 3-2. Vocational Education Enrollment Summary, By Occupational Category and Educational Level, Fiscal Years 1964–67

	Total	Secondary	Post-secondary	Adult	Special Needs	
			Fiscal Year 1964			
Grand totals	4,566,390	2,140,756	171,495	2,161,223		
Agriculture	860,605	501,819	—	265,879		
Distributive occupations	334,126	55,132	2,688	276,306		
Health occupations	59,006	5,478	41,698	11,830		
Home economics	2,022,138	1,308,453	1,652	712,033		
Technical occupations	221,241	20,755	71,824	128,662		
Trades & industry	1,069,274	249,119	53,633	766,513		
			Fiscal Year 1967			
Grand totals	7,047,501	3,532,823	499,906	2,941,109	73,663	(92,925)[a]
Agriculture	935,170	508,675	8,093	413,454	4,948	(12,488)
(Off-farm)	(151,781)					
Distributive occupations	481,034	151,378	21,003	303,783	4,870	(9,065)
Health occupations	115,109	16,734	54,135	42,721	1,519	(1,146)
Home economics	2,186,992	1,475,235	3,506	685,225	23,026	(33,437)
(Gainful)	(62,245)					
Office occupations	1,572,325	985,398	192,639	389,174	5,104	(18,475)
Technical occupations	266,054	27,614	97,156	140,431	853	(2,927)
Trade & industry	1,490,807	367,374	123,374	966,301	33,343	(15,387)

Source: Data furnished by the Division of Vocational and Technical Education, U. S. Office of Education.

[a] Numbers in parentheses include persons with special needs enrolled in regular classes.

placement of completers by secondary and post-secondary enrollment would be of significant interest. The hypothesis to be tested would be that post-secondary enrollees are far more likely to seek and find training-related jobs.

The rising proportion of post-secondary enrollments—over 7 percent in 1967 as compared to less than 4 percent of all vocational education enrollments in 1964 (while, in contrast, adult or part-time enrollments fell from 47 to 42 percent)—was a response to labor market forces rather than legislative prescription. The effect of the 1968 requirement that at least 15 percent of present state grant monies and 25 percent of such monies added to the present appropriations in the future be spent for post-secondary training will not be reflected until the 1969-70 enrollments, three years later than those available now.

Whether projected training needs in any particular occupation are more appropriately filled in secondary or post-secondary schools is a question of judgment. Technicians of the General Learning Corporation make the judgment that 23.3 million of the 31.5 million new entrants to the labor force projected by the BLS between 1967 and

TABLE 3-3. Summary of Cumulative "New Entrant Requirements" by Education Level of Instructional Programs, 1967–75

Grade Level	Number Assigned	Percent of Total
Combination of secondary school and/or junior college (9-14)	10,490,900	45
Junior college, technical institute, community college (13-14) only	6,701,700	29
Junior college, technical institute, community college and/or collegiate four-year program (13-16)	2,380,700	10
On-the-job training, organized in cooperation with schools	1,899,000	8
Secondary (9-12) only	1,770,100	8
Collegiate four-year program (13-16) only	35,300	a
Total cumulative "New Entrant Requirements" by level of education	23,277,700	
Occupations unclassified by instructional programs	8,268,200	
Grand total	31,545,900	100

Source: James Nussbaum and William Morsch, *Estimates of Vocational Education Requirements Based Upon General Learning Corporation Model*, paper prepared for Ohio State University Conference on Manpower Forecasting for State Vocational Education Planning, June 12-13, 1969, (mimeo).
a Less than 1 percent.

1975 could be appropriately prepared through vocational education programs (Table 3-3).[3] Their estimate that 39 percent will definitely require post-secondary training while only 8 percent are clearly secondary and 45 percent not distributable with any certainty is worth contrasting to 1967 enrollments of 3.5 million in secondary vocational education and 500,000 in post-secondary (850,000 to 190,000, respectively, in terms of completions).

Special Needs

The continued slow response to the 1963 directive to give high priority to the special needs of the disadvantaged supports the wisdom of the 1968 decision to earmark a proportion of state grant funds for that purpose. Yet the difficulties posed by the legislative language must be kept in mind. From no such enrollments in 1964, the proportion of special-needs enrollments to total enrollments rose to 0.8 percent in 1966 and 1.1 percent in 1967. These figures are for enrollments in special programs for those with special needs. Many claimed that significant numbers of special-needs persons were already enrolled in regular courses. However, estimates of the number so enrolled in 1967 add only another 1.3 percent of total enrollments for a final proportion of about 2.5 percent. But though the legislative history makes it clear that the Congress was seeking to aid the disadvantaged, the legislative language specifies that the special-need classification be only those whose academic, socioeconomic, and other handicaps prevent them from succeeding in regular courses. With a literal interpretation, no matter how disadvantaged an individual or a whole class, if he or they can profit from a regular course, the special-need classification does not fit. The number counted are those for whom a special course has been established or who survive in the regular courses only with special supportive services.

The occupational distribution of special-needs courses is consistent with the view that little response had occurred by the end of fiscal 1967 (Table 3-4). Nearly 34 percent of the total was in home economics with another 10 percent in vocational agriculture. However, outside these areas, the training occupations appeared to reflect a reasonable response to market demand. Office occupations accounted for 14 percent and trades and industrial occupations 29 percent.

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[3] James Nussbaum and William Morsch, *Estimates of Vocational Education Requirements Based upon General Learning Corporation Model*, paper prepared for Ohio State University Conference on Manpower Forecasting for State Vocational Education Planning, June 23-25, 1969 (mimeo), p. 33.

TABLE 3-4. Special Needs Enrollments 1967

Institutional Programs	Enrollment	
	Special Programs	Regular Programs
Health Occupations	1,519	1,146
Dental assistant	71	113
Dental hygienist (Associate Degree)	—	15
Dental lab. tech.	—	—
Medical lab. assistant	15	75
Nurse, Associate Degree	—	291
Practical (vocational nurse)	88	437
Nurses' aide	676	222
Radiologic technology	4	8
Optician	—	—
Technical Occupations	853	2,927
Engineering related tech.	755	—
Scientific data processing	40	19
Commercial pilot training	—	130
Police science tech.	—	—
Distributive Occupations	4,870	9,065
Advertising services	19	28
Automotive	435	142
Finance and credit	11	14
Food distribution	132	138
Food service	302	123
General merchandise	869	612
Hotel and lodging	15	15
Insurance	2	8
Real estate	1	366
Transportation	25	324
Office Occupations	5,104	18,475
Business data processing	317	973
Personnel, training	—	—
Stenographic, secretarial	2,943	1,573
Typing	793	1,353
Trades & Industry	33,343	15,387
Air conditioning trades	56	241
Appliance repair	126	164
Automotive body & fender	542	473
Automobile mechanics	2,644	2,112
Aircraft maintenance	12	389
Aircraft operations	—	—
Ground operations	—	130
Business machine maintenance	2	61
Commercial photography occupations	40	162
Construction & maintenance trades	1,063	33
Carpentry	464	872
Electricity	90	289
Heavy equipment construction	—	3
Masonry	282	334
Painting and decorating	124	153
Plastering	—	—
Plumbing and pipefitting	39	56
Custodial services	364	336
Diesel mechanic	75	98
Drafting	1,040	676
Electrical occupations	53	55

Table 3-4 (Cont'd)

Institutional Programs	Enrollment	
	Special Programs	Regular Programs
Trades & Industry (cont'd)		
Lineman	—	1
Communications	—	97
Graphic arts occupations	988	577
Instruments maintenance & repair (including watchmaking & repair)	2	9
Maritime occupations	1	3
Metalworking occupations	167	—
Machine shop	337	561
Sheet metal	94	205
Welding	664	848
Barbering	149	82
Cosmetology	133	566
Fireman training	1	345
Waiter/waitress	56	90
Stationary energy sources occupations	—	—
Pumping plants	—	—
Shoe manufacturing/repair	384	15
Upholstering	413	211

Source: Bureau of Adult and Vocational Education, Office of Education.
Note: Individual numbers will not add to totals because many occupations are excluded.

Cooperative Education

Enrollments in cooperative education programs in 1967 totalled 186,000, nearly half of which were in distributive education, over a quarter in office occupations, and one-sixth in trades and industry. Health occupations and off-farm agriculture accounted for the remainder. One intention of the 1968 Amendments will be a significant increase in this category.

Mechanisms for Response

Given the built-in resistance to change which hobbles all organizations and systems, the development of offsetting mechanisms of response is critical. The 1967 Advisory Council on Vocational Education, in its report, complained that "innovation consciousness often appears to be more intense at the local level than the national level, with certain state boards of vocational education showing the least progressiveness." The Council was especially critical that "considering the frequent hunger for leadership at the local level, the U.S. Office of Education has shown undue timidity in failing to endorse and press for innovations more vigorously."[9]

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[9] Evans, Mangum, and Pragan, *Education for Employment*, pp. 51-52.

The assignment of responsibility is an appropriate one. The instructor and the school may be more aware of the needs of individual students while the perspective of national, regional, and labor market needs can be more easily gained by the national and state authorities. The latter have the direct assignment from the priority-setters in the Congress and state legislatures who provide the funds. Theirs is the responsibility to develop and exercise leverage for change.

Following its post-1963 experience in which directives for change and added funds for the implementation were followed by only a minimum of redirection, the Congress was aware in 1968 that more than directives were needed. It simply mandated the desired shifts to the disadvantaged and handicapped and to post-secondary institutions by earmarking percentages of appropriations to those purposes. It endorsed cooperative and consumer education programs by assigning specific amounts of money to them rather than leaving their inauguration to the discretion of state and local authorities. It was not possible, however, to dictate in law what occupations should be served. It was possible to endorse a philosophy of vocational education, but it was not possible to impose it. The latter could be encouraged by removing legislative obstacles. The former depended upon building in pressures for change to offset those against change. For these the Congress depended upon national and state advisory councils and a strengthened state plan mechanism—the councils to provide greater outside influence upon the education system and the state plan to give the federal agency a more effective voice in the approval of state programs.

National and State Advisory Councils

The 1963 Act established a National Advisory Committee and directed the establishment of state committees wherever the State Board for Vocational Education lacked substantial outside representation. The emphasis was on "advisory" and neither was given specific responsibilities. The 1967 National Advisory Council on Vocational Education (which was a one-time ad hoc council assigned to review the results of the 1963 Act) was critical of both the national and the state advisory committees and of the U.S. Office of Education for not making better use of them.[3]

Based partly upon that criticism, the Congress sought to strengthen both levels of activity in 1968. State advisory councils were made mandatory. The preference of many of the authors was to have them gubernatorially appointed to add an additional layer of independence from the in-group. Acceding to a strong counterattack, governors were given that authority only in states where the State Board of Vocational Education was not elected. The groups to be represented were prescribed, and both the national and state councils were given independent budgets and staffing and the authority to evaluate plans and programs and report on them to the public, legislatures, and Congress.

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[3] Ibid., p. 60.

All (or most all) have now been appointed. What leverage will have been achieved will depend upon the quality of the appointments and staff, how seriously they take their assignments, how their legal responsibilities are interpreted, whether they can develop meaningful techniques for evaluation, and the extent to which the U.S. Office of Education and the governors support, encourage, and provide leadership to them. State directors were never enthusiastic about the concept, having been long accustomed to relatively meaningless and strictly advisory relationships. A few of the most influential state directors have undertaken what appears to be a concerted campaign to prevent the councils from rising above that customary role.

The State Planning Process

Traditionally, the vocational education division of the U.S. Office of Education had acted more as a disbursing agent for Congress and as a source of technical assistance than as a determiner of policy and good practice. The states' obligations were to match federal funds and spend them within prescribed occupational categories. The annual state plan was a contractual agreement to obey the law, and a projected program activities section provided inadequate and largely ignored information about what the state intended to do with the funds.

In part prodded by the ad hoc Advisory Council's criticisms, Congress undertook to strengthen this mechanism for federal leadership. The state plan must be substantive; it must be prepared in consultation with the state advisory council and subjected to a public hearing; it must be long range (three to five years) as well as annual; it must set forth in detail the policies and procedures for distribution of funds to local communities. The law more specifically requires the Commissioner of Education *not* to approve an unsatisfactory state plan. He is now the guardian rather than the paymaster of effective vocational education. But saying it does not make it so.

The Commissioner can enforce a meaningful planning process in two ways: (1) by providing planning guidelines which encourage or require real planning, and (2) by rejecting unsatisfactory plans.

There were both hopeful and discouraging signs for fiscal 1970. The Amendments having become law only at the end of 1968, it was necessary to sift the legislative history to determine congressional intent, to prepare regulations to interpret the new language, to draft guidelines for administration of the law including the state plan provisions, to consult all necessary parties and groups, to achieve acquiescence if not acceptance, and to disseminate the result in time for states to prepare and return their plans before June 30, 1969. One should not be overly critical if the product of the first year, either the guidelines or the plans, proved disappointing.

As a mechanism to encourage change, it is probably fairest to say that the proposed guidelines issued in May 1969 were not an impediment. The second set, those for fiscal 1971, could be a more positive force.

Of the original three-part guide, the first part requires a State Plan which is the familiar lengthy commitment to obey the law, the second is a guide to the long-range program plan, and the third outlines the annual program plan. The long-range program plan guide requests a summary of projected labor demand and supply for fiscal years 1970-74. However, the projections are required to be no more detailed than broad occupational instruction categories, adding where possible, estimates by instructional program. Occupational *employment* categories are not required. The implication and probable reaction will be to take the existing instructional categories and project the labor market demand for each, rather than to begin with labor market demand and indicate how many are to be supplied for each demand category. Areas of unemployment, population density, poor retention, etc., are to be mapped along with school locations. Demographic and economic population data are to be provided and projected. Priority populations are to be identified, and numerical goals for numbers of programs or enrollment are to be set. Funds needed are to be estimated. There is no requirement for actual description of what is substantively intended—no discussion or indication of how supply is to be meshed with demand, what philosophy of vocational education is to be endorsed, what is to be done for each demographic group, or what will be the nature of research, exemplary programs, or consumer, homemaking, and cooperative programs. None of these is forbidden, but the dummy tables supplied neither request nor offer space for such demonstration of intentions.

The annual program plan requires indication of allocation of funds by broad program purpose (secondary, adult, disadvantaged, teacher training, research, etc.). Instructional programs are to be listed by occupational code with indication of continuation, expansion, additions, and enrollments. New construction projects are to be listed, and requests for transfer of funds among sections of the law are to be made with explanation. Again there is no request for information relating curriculum plans to labor market demand or the needs of target groups, and no indication is given of program content or philosophy.

It is easy to be excessively critical. Time for derivation of state plan guidelines has been short. Even had it not been, it is difficult to devise a plan format which can be both followed with reasonable effort at the state level and meaningfully analyzed and responded to by the federal agency. But that the task is a difficult one and the desired product by no means clear does not refute the objective fact: The current planning guide is unlikely to be a significant factor in encouraging greater curriculum response to occupational trends and other aspects of effective vocational education. Guidelines designed to force recognition of trends and needs and to require explanation of and alert the federal agency to nonresponse, backed by willingness to reject the result of inadequate planning, are necessary if the congressional vision of the state plan's potential is to be realized.

Reporting Procedures

A more modest and more easily achievable pressure for response would be improvement of the existing reporting requirements. The 1967 Advisory Council also complained that a reporting system designed to ascertain only that federal dollars were matched and spent in the prescribed broad occupational categories was grossly inadequate for evaluation. The same finding remains true for encouraging response to labor market, demographic, and policy changes. The only information provided by the reporting system until the present has been the number and sex of enrollees, their stage in school, the broad occupational category of enrollment, level of training (secondary, post-secondary, etc.), and the distribution of funds by broad occupational category. No information has been included on specific occupations of training, the hours of classroom time spent per student in each classification, and the race or ethnic origin of the students.

Just requiring adherence to special reporting definitions would do much to shift practices in those directions. Enrollee characteristics by age, sex, race, and education should be available and related to training occupations and placement. Hours of classroom exposure should be used to deflate enrollments by occupation or training into some uniform time-equivalent. The special-needs and handicapped groups should be defined for consistent reporting. Special studies should report on the family incomes and residence (rural, suburban, central city) of students and the quality of equipment and instruction. A continuing follow-up and evaluation program should make longitudinal studies of enrollees from various instructional programs and compare their employment and earnings experience with alternative programs and methods of skill acquirement. Participation in the placement process might be the best continuing test of immediate relevance.

Projections as Response Mechanics

Though not as critical as under previous philosophies, the correspondence between training occupations and projected openings can provide a useful check of relevance and, therefore, a goad to change. Available national projections have a good record for accuracy, though they have not attempted to forecast short-term fluctuations in demand and have tended to be somewhat too conservative on the growth of new occupations. The difficulty is to know how national trends will combine with regional and local forces to affect the local demand for skills, where the student will choose to live following training, and the extent to which he will choose to "buck the trend" by knowingly preparing himself to compete in a declining occupation.

The lack of regional and local projections and knowledge of student mobility patterns are the most serious deficiencies for planning vocational education curricula. The first shortcoming has been recognized and techniques have been developed for basing state and area projections on those for the nation.[6] Such projections are now available for a limited number of states, and others will follow shortly with projections for whole states and portions of states. A continuing obstacle is the fact that most projections are made for occupational categories developed by the Bureau of the Census and adhered to by the Bureau of Labor Statistics, which differ in form and purpose from those developed by the Bureau of Employment Security for its *Dictionary of Occupational Titles* (DOT). The latter, though designed for vocational guidance and placement, has no necessary relationship to any existing categorization of training programs. In fact, it is only after a decade of off-and-on effort in the U.S. Office of Education that a common classification system for education and training programs is coming into existence. Following close behind it is a taxonomy to transform DOT occupational categories into training strategies. It will still not necessarily relate projections to either the DOT or training programs.

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[6] U.S. Department of Labor, Bureau of Labor Statistics, *Tomorrow's Manpower Needs, National Manpower Projection and a Guide to Their Use as a Tool in Developing State and Area Manpower Projections,* BLS Bulletin No. 1606, February 1969; Norman Medvin, "Occupational Job Requirements, a Short Cut Approach to Long Range Forecasting," *Employment Service Review* (January-February 1967).

Geographical Mobility and Manpower Projections

The mobility issue involves data, philosophy, and practical politics. One in each fifteen American families moves across county lines each year. An even larger proportion of young people upon or soon after entering the labor market choose to emigrate to another area for employment. The vocational educator is concerned not only with what occupational skills will be in demand in the home community but also with what occupational opportunities are available elsewhere and how to project the proportion of youngsters who will be mobile. Beyond the information as to how many and who will move where and for what occupations is still the philosophical question, "Which should have priority, labor market needs or student choice?" If the answer is the labor market, which market—that at home or that further afield, and which occupation in which market? The practical political question concerns the willingness of local taxpayers to support training which will not be used locally and may even encourage out-migration.

The fact that half the money may be matched by federal dollars makes no difference. The funds are allocated to the states by formula and, therefore, in effect belong to the state where, if not used for training out-migrants, they can be used to train those who remain at home.

Alternative Skill Sources

The linkage between projections of occupational trends and vocational education planning is kept tenuous by the lack of any clear criteria for choosing among alternative sources of skill training. Vocational education should not seek to train in occupations for which the skills can be more efficiently acquired through on-the-job training or work experience. The choice is most often treated as an economic one: Who should pay the training costs: the worker, the employer, or the taxpayer? The economic issue is seldom specifically confronted, but policy decisions are made as the voters do or do not agree to assume the costs. There is no focal point for developing and considering technical criteria for choosing the most efficient system of skill acquirement.

The general principle for efficient allocation of resources in a market economy is that each individual or institution should pay for his or its own benefits with the public paying only for social benefits over and above the private ones. For the public to do more encourages overconsumption; to do less risks depriving society of those social benefits which accrue to no individual and for which no one is willing to pay.

If the employee or employer pays the full cost of training, his willingness to do so assures that the benefits to him were worth the costs. If the public pays all or part of the costs, either or both may be tempted to waste resources by undertaking more training than is justified by the benefit-cost relationships. However, if there are social benefits in excess of the private benefits, the willingness of the private parties to pay for only the benefits to them will leave the investment in training below the social optimum.

Elementary and secondary education in the United States has been considered a classic case for public support. Parents, not the recipient youth, pay the costs in the absence of public education. Parental self-interest and the short time-horizons of youth may underestimate education's value. Having an informed, educated electorate is assumed to have social value for a democracy over and above the investment and consumption value of education to the student. The case has been less clear for higher education, but as it has become a more important prerequisite to individual success, economic growth, and national defense, the same arguments have led the body politic to assume a rising share of the financial costs. Provision of job skills at public expense has found less support. Yet unless it can be shown that the assumed social benefits from higher education accrue only from its nonvocational components or that only those occupations requiring college education have "external" benefits, it is difficult to argue for support of occupational preparation for college youth and to deny it to those who do not go on to college.

Assumption of the employer's training burdens (except insofar as he hires the disadvantaged) is even more troublesome conceptually. In theory, only the broader preparation for employment beyond that of direct value to the employer is assumed to be an appropriate public responsibility. An employer could be expected to provide only those skills specifically required by his operations and which he cannot satisfactorily obtain in the open market or get the schools to provide for him. However, few skills are so unique and nontransferable as to be useful only to one employer.

There is a public interest in training when its presence encourages (or absence prevents) greater output and a higher standard of living, higher quality goods and services, more stable prices, or a more dynamic and adaptable economy. Efforts of employers to "pirate" rather than to train workers may have inflationary consequences.

There is no guarantee that the worker trained at employer expense will remain in the latter's employ. Small firms cannot afford to hire training directors, work out curricula, prepare materials, and hire instructors. In addition, a large firm may so dominate a labor market that it faces little risk of losing its trained personnel; the risk is greater, the smaller the firm relative to the size of the labor market.

Employers may be too shortsighted to recognize the potential profits from training, employing, and producing, whereas the ready availability of skilled manpower may make the profit potential of an investment less obscure. Similarly, since communities compete for employers as the latter do for customers, a region may find it profitable to publicly supply a skilled labor force, hoping to attract new employers to use it. However, the risks for the public and the individuals involved of training in hope rather than in anticipation of use must be accounted for in the public decision.

Obviously, criteria for choice between public and private support of occupational training are more easily developed in theory than applied in practice. It is not surprising that what skills are provided by vocational education is largely a matter of local practice and political pressure.

Conceivably, the choice between publicly and privately supported occupational training could be made on technical grounds of identifying the most efficient training method for the particular occupation, though the provider of the training need not be the financial supporter of it. However, the criteria for such a choice have never been developed and generally accepted. The workplace has the advantage of realism—the atmosphere and discipline which is difficult to duplicate in a contrived environment. It also saves the duplication of equipment for training purposes. In addition, skilled employees and supervisors may double as instructors.

The school may make it easier to combine theoretical knowledge and manipulative skills, though this is not ruled out in the workplace. It may be possible also to supply skills in a shorter time by contriving sequences at the instructor's discretion, adjusting training to the trainees' learning pace, and concentrating on and reiterating difficult areas of learning. There may also be economies of scale in the large numbers who can be run through a school in comparison to the number who can be trained on the job subject to production conditions.

It is possible to think of criteria which would bias the choice in one direction or another in a particular occupation: (1) Is there a substantial theoretical content to the job, or is it primarily manipulative? One may trust his safety to a bus-driver who learned on the job but prefers that an airline pilot have some knowledge of meteorology and navigation learned in the classroom. A civil engineer and an instrument man on a surveying crew offer the same contrast in a less dramatic way. (2) Are there basic skills of broad application? One does not usually think of teaching typing on the job, though filing may be taught there. (3) Is the work repetitive so that, once learned, little exercise of judgment is needed? On-the-job training may be adequate for an operator of a single machine, but some more formal training may be needed by a general machinist or a tool and die maker. (4) Does the employee work without supervision, depending on his own initiative and judgment? A positive answer might suggest pre-employment training; yet craftsmen of whom this is supposedly a description more often learn on the job. (5) Can the workplace be duplicated institutionally? Contrast the machine shop to the coal mine. (6) What are the costs and risks of learning on the job? Expensive equipment might suggest training in industry, while a high risk factor might suggest prior institutional preparation. None of these considerations alone is likely to decide the issue of what skill demands are best met by vocational education and what by less formal methods, but each will have its influence.

Occupational Trends and Likely Response

The time appears near at hand when lack of occupational projections—national, state, and local—will no longer be a legitimate complaint for educational planners. However, availability of projections will still not answer questions of student choice and mobility, nor will it decide the economic and pedagogical advantages of institutional versus on-the-job training. The philosophical but practical question of how broadly or narrowly to train and the partly financial, partly administrative, problem of responding once projections are available are separate issues. The fact remains that lack of knowledge of present and future manpower requirements cannot be blamed for the grosser misallocations of vocational education resources. Better information is always a plus, but funding, institutional resistance, inertia, and uncertain objectives are the obstacles to curriculum response.

Whether attuned to labor market requirements or employment needs, the vocational education curriculum does respond, though with considerable lag, to the changing occupational structure. Lack of current and projected labor market information is minor among the reasons for this sluggishness; vested interest, business support, fixed investment in physical plant and equipment, and inertia are all more important. Nevertheless, the improving availability and quality of current data and projections will be one more among counterpressures for greater responsiveness.

Most promising of all was the apparent willingness of the Ninetieth Congress to multiply expenditures on vocational education after having built significant response mechanisms into the law. The feeling after several years of emphasis on remedial manpower programs that prevention must assume a higher priority were evident in the 1968 legislation. Efforts of both the Johnson and Nixon administrations to discourage appropriation of the authorized funds is more an indication of disinterest in the subject than it is of a reasoned preference for continuance of the remedial emphasis. Without top level concern, the distrust of vocational education by Budget Bureau staffers becomes dominant.

More important in the long run than the discussion of how much to spend on vocational education and what occupations to stress are the implied technical and philosophical debates underlying the current indecisiveness. Whether vocational education or the Job Opportunities in the Business Sector (JOBS) program get the few dollars available represents also an implied choice between institutional and on-the-job training as a preferred method for imparting skills. That vocational educators and labor market experts persist in debating what to train for, leaving the more basic question of how to best prepare people for employment to congressional decision, is an interesting shift in the location of impetus and response.

Chapter 4

OCCUPATIONAL FACTS AND THEIR USE: MEDIATION AND THE GENERATION OF OCCUPATIONAL INFORMATION

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and
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Chapter 4

OCCUPATIONAL FACTS AND THEIR USE: MEDIATION AND THE GENERATION OF OCCUPATIONAL INFORMATION*

Robert P. O'Hara
and
David V. Tiedeman

Occupational Facts/Data, Media, and Mediation

Occupational Facts/Data

Vocational educators work with students just before they go to work, either at their first job or at their next job if a student has returned to school after having worked. This proximity of the vocational educator to his students' work has made him aware of the need which they have for occupational facts or data.[1] In reality, his primary task is to give his students sufficient perspective so that the student can take on his forthcoming job identity with ease and thereby survive his imminent induction into the work of sustaining that new identity. The vocational educator, therefore, is concerned that occupational facts/data become information—that is, acted-upon knowledge.

Students' needs for occupational facts/data extend to the time *before* they enter their present vocational education and to the time *after* they complete their education, look for a job, and enter its

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[*] The authors are indebted to Gordon A. Dudley for the mediation concept on which this paper is built. Dudley and Tiedeman amplify the concept in a forthcom- *in Career Development,* Dorsey Press, in press. This paper was received by the editors of the present volume in 1969.

[1] Occupational facts/data come in two conditions, fixed and modifiable. We therefore elect to adopt the cumbersome term, "facts/data," to indicate this fact throughout the paper. Occupational facts are directly recoverable without mediation except for storage and later recovery. On the other hand, occupational data must be additionally processed by the numeric and/or linguistic routines of a mediation system.

employment. These needs have caused vocational educators to support accumulation of the type of occupational facts/data which are now quite universally available.

The U.S. Department of Labor assembles and publishes many facts and data about occupations: dictionary definitions;[2] occupational briefs which describe an occupation more fully than does its definition and are intended for someone who might work in the occupation;[3] and skeletonized occupational briefs in the *Occupational Outlook Handbook,*[4] as augmented by data on prospects in the occupation. These descriptions and projections are intended for persons still exploring occupations but not yet committed to entry into any one.

New Media

Descriptions, briefs, and outlooks published by the Department of Labor are also revised and republished by one or another commercial publisher of so-called occupational information. As a result, a great deal of so-called occupational information exists in the United States today, as do many detailed statistical analyses of industries, businesses, and their labor needs. Developments of this kind have a bearing on the work of the vocational educator which this volume considers elsewhere. However, this chapter explores in detail a particular implication of this work: namely, the *turning* of these facts/data into *personal* information through the process of mediation.

Although the vocational educator deals with his students when they are presumably committed to the occupation of his program, the counselor sees these same students before, during, and after that commitment. This more extended glimpse of the meaning of an occupation for the life of a student causes the counselor to view more tentatively that decision to which the vocational educator would prefer that the student actually be committed. A firm commitment undoubtedly facilitates the student's assumption of the occupational identity which the vocational educator dedicates himself to help the student assume. However, a firm commitment without the necessary involvement can be disastrous, as we argue here.

The necessity for the student and the counselor to see the decision of the student in the larger perspective of the student's former life and intentions other than those dictated by the imminent occupational identity creates a different kind of need for occupational facts/data than that traditionally supported by the vocational educator. This need is for facts/data which are (1) more motivating, (2) more social, and (3) paradoxically, more ambiguous specifically but more compelling generally.

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[2] U.S. Employment Service, *Dictionary of Occupational Titles* (Washington: U.S. Government Printing Office, 1965).

[3] U.S. Bureau of Employment Security, *Occupational Briefs* (Washington: U.S. Government Printing Office).

[4] U.S. Bureau of Labor Statistics, *Occupational Outlook Handbook: Employment Information for Use in Guidance* (Washington: U.S. Government Printing Office, 1966-67).

Those associated with the production of occupational information are now modifying occupational facts/data in one or more of the needed ways. However, during the past several years most of this work has also been associated with the appearance of new media which are markedly changing our capacity to deliver occupational facts/data.

Early work with media focused quite directly on the media themselves. Investigators simply learned what the new media were about and attempted to make old occupational information fit each new possibility. A number of projects of this nature exist around the country. Campbell, Martin, and Tiedeman published a summary of many of these projects in 1966.[5] Perrone and Thrush have published a recent summary and extension of that original work.[6] In addition, Eli Ginzberg and colleagues, in the Conservation of Human Resources Project at Columbia University, are also in the midst of a two-year evaluation of occupational facts as a means for improving the lives of people. Ginzberg's report, *Guidance USA*, will provide an extensive look at how we presently create, package, and deliver occupational facts. For these reasons, we prefer to turn here from an interest in facts and media to an interest in mediation. We conceive mediation as the attempt to deliver occupational facts/data not merely in their own terms or those terms changed because of the demands of new media but also in terms of the effect that delivery has on the personal learning and identification undergirding the confident assumption of a new occupational identity.

From Media to Mediation

Mediation, not *media*, must become the central focus for education, general and vocational. The turning of occupational facts/data into information is a personal and educational process. Therefore, the important question is the means by which media actually prove to mediate the personal education process. We elect to address herein the most important of our questions in vocational guidance: How may we better the personal educational process associated with vocational development?

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[5] Robert E. Campbell, David V. Tiedeman, and Ann M. Martin, eds., *Systems under Development for Vocational Guidance. A Report of a Research Exchange Conference* (Columbus: Ohio State University, 1966).

[6] Philip A. Perrone and Randolph S. Thrush, "Vocational Information Processing System: A Survey," *Vocational Guidance Quarterly*, 17 (June 1969), pp. 255-66.

Shortly before we were invited to write this chapter, Tiedeman had a confirming experience with a recent book by McLuhan and Fiore.[7] The younger of his sons left his copy of this book on a table in their living room for about a week, but he was not particularly interested in it because, during his early glances at it, he kept reading its title as *The Medium Is the Message*. That seemed a clever, though not an intriguing, title. One day it suddenly came to him that the book's title is *The Medium Is the Massage*. His double-take and that realization connected then with his realization that this was the process of mediation which we develop in this chapter. Thus, a hurried turn to the book reinforced his recognition that, in occupational facts/data as well as in the generality of communication treated by McLuhan and Fiore, the media are not the message. In fact, media can never be the message; only the facts which media convey are the message. The *media* themselves only become important in message transmission when they actually *mediate* transmission—when they actually m*a*ssage the occupational information process as persons are exposed to occupational facts/data.

Epistemology and Pedagogy in Mediation[8]

The point of view we outline in this paper is one which derives important aspects of its validity from being realized again and again through a wide range of personal experiences with facts and ideas. Our "frame of reference" with regard to the interplay of facts, ideas, purposes, and action represents a form of orientation which, while it cannot be specified in the abstract, serves in any given context of personal encounter to articulate immediate concerns with issues of broader relationship and relevance.[9] Therefore, in order to articulate aspects of our immediate topic within a context of issues of broader educational concern, we address ourselves to two assumptions which we consider to be inconsistent with crucial principles of educational process. It is the alternatives to these principles that we strive to describe in this chapter.

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[7] Marshall McLuhan and Quentin Fiore, *The Medium Is the Massage* (New York: Bantam Books, 1967).

[8] We are indebted to Gordon A. Dudley for the structure and ideas of this subsection.

[9] Michael Polanyi, *The Study of Man* (Chicago: Phoenix Books, University of Chicago Press, 1958).

The first of these assumptions pertains to the nature of knowing and the known. There are current applications of recent media developments to issues of vocational information which appear to presume that facts, data, or information consist of bits of knowledge which correspond directly to that presumed to be the real, the true, and the knowable. In brief, knowing and the known are presumed to comprise a direct, linear relationship both in the abstract and as we realize them as dimensions of particular circumstances. We shall show the serious limitations of this position as we attempt to implement our current technological resources in the service of personally determined career development.

The second of the assumptions is in an important sense subordinate to the first, for it pertains to the nature of the relationship between acts of knowing or learning and those of teaching or counseling. This assumption suggests that, on the basis of a "correspondence" theory of knowledge, we can presume to select those aspects of the known and knowable which shall be most effective in determining a subsequent course of events toward an end that we value and which, as "means" toward that end, we call "learning." In brief, the assumption is that we can determine, in advance, both goals and procedures appropriate to the educational process in its distinctive human immediacy and variability.

These assumptions, one "epistemological" and the other "pedagogical," are inconsistent with what seems to be one of the most crucial principles of our own current work, namely, that both knowledge and the process of knowing are functions of a personal and collaborative context of exploration and confirmation—a context which is itself defined by a nexus of human purposes expressed both overtly and covertly, both tacitly and articulately. The alternative position from which we speak suggests that our talk about media cannot look in one direction only. It cannot look solely toward facts, data, information in isolation from persons and processes. We hold that the reciprocal interaction between the knower and known entails a "transactional" perspective and an array of procedures more aptly denoted by the notion of *mediation*. The final turn of this argument is that, because of the interplay of the tacit and articulate dimensions of knowing in the personal act of learning, the experience of mediation is that of a m*a*ssage. In other words, we inevitably encounter the new with a habitual tensing of our intellectual musculature, with the result that its meaning takes initial form after that which we have long known and to which we have accommodated. Only after we have worked with (and perhaps more importantly, been worked on by) a new possibility do we relax to the point of seeing more clearly that something new has indeed been going on in, as well as around, us.[10]

Our advocated perspective is "transactional" by virtue of the implication that both processes of teaching and learning are construed as individual and collaborative acts of "sampling," from among a wide range of on-going events (both personal and environmental), those configurations of meaning and implication which best serve to differentiate means and ends, processes of imagination and structures of knowledge, and acts of discovery and principles of verification. Within this "transactional" perspective, facts and data derive their significance as exemplifications of meaningful coherence among stable dimensions of events reflecting multiple principles of order.[11] It is this transactional perspective regarding the interplay of information and imagination which brings our ideas in harmony both with current developments in discovery teaching and the "new" curricula,[12] and with the "new" self-knowledge and creative learning developments.[13] It is a point of view from which we risk inviting the student to take advantage of our capacity to learn through his ability to teach us.

We devote the balance of this chapter to tracing the emergence and implications of our "transactional" or "mediating" perspective regarding those developments. This point of our view has never before been reported. We presume that its availability will do more for the assessment of occupational information, because it is a theoretical view, than can be done by intimate assessment of the so-called "information" itself. In presenting our point of view for evaluating the application of media to issues of occupational information within the context of personally-determined career development, we shall stress three "facts":

1. The subordination of the concept of media to the concept of mediation implies that, in relation to occupational information, media represent means in the service of vocational development. Thus, the first "fact" to be developed more fully is that occupational mediation relates to the cultivation of *vocational development*, not to mere occupational entry and success.

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[10] Cf. Piaget on assimilation and accommodation as reported by Flavell: John H. Flavell, *The Developmental Psychology of Jean Piaget* (New York: Van Nostrand, 1963).

[11] U. Neisser, "The Multiplicity of Thought," *British Journal of Psychology*, 54:1, pp. 1-14.

[12] Jerome S. Bruner, *Toward a Theory of Instruction* (Cambridge, Mass.: Harvard University Press, 1966).

[13] Lawrence S. Kubie, *Neurotic Distortion of the Creative Process* (Lawrence: Kansas University Press, 1958).

2. The concept of vocational development as the goal of occupational mediation raises the issue of *personal responsibility* and involvement in the determination of those ends. This is the second of the "facts" within the context of mediation to be considered.
3. Finally, a discussion of vocational development and occupational mediation within the context of formally organized educational structures raises issues with respect to broader implication and *implementation*. Thus, the third "fact" to be discussed is our responsibility and opportunity to consider means by which mediation of vocational development can be accomplished more effectively for all citizens of the United States through the engagement of systems and structures beyond those formally organized for educational purposes. We examine that implementation at two levels: the general level of mediation within occupational personality formation itself, and the specific level of mediation within a potential instrument for that realization—a computer-based Information System for Vocational Decisions.

Personal Responsibility for Goal Determination During the Mediation of Occupational Facts/Data: Needed Structure of Authority in Turning Development into Maturation

Personal Responsibility and Vocational Maturity

Vocational development has become an appropriate goal for occupational information, and the theory of vocational development[14] is sufficiently advanced to give us a new concept of what we actually need to mediate, namely, vocational maturity.[15] We know that the society, its economy, and its organizations help persons to harmonize initiative and efficiency during the course of personal evolution in vocational identification and personality development. However, counselors and other educators still have a staunch interest in cultivating individualization during the course of the socialization of that collaborative activity known as work. Our resolution on this score, by bringing personal responsibility for goal determination into the mediation of occupational facts/data, puts maturation into the fore as a goal of vocational development. Personal responsibility for goal determination is a necessary part of personal development through the educational process. Therefore, it must remain a central index of our success in bringing the goal of vocational development into the mediation of occupational information for the purpose of cultivating vocational maturation.

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[14] Donald E. Super, *The Psychology of Careers* (New York: Harper & Bros., 1957).

[15] John O. Crites, "Measurement of Vocational Maturity in Adolescence: 1. Attitude Test of the Vocational Development Inventory," *Psychological Monographs: General and Applied*, 79 (1965), pp. 1-36; Warren D. Gribbons and Paul R. Lohnes, *Emerging Careers: A Career Pattern Study* (New York: Columbia University, Teachers College Press, 1968).

Personal Responsibility and Pedagogy

The strategy for cultivating personal responsibility during education has one of its foundations in the pedagogy of discovery teaching, as Bruner recommends.[16] In discovery teaching, goals and structures which are originally those of the teacher are offered to students with the expectation that the student will incorporate them into his own response repertoires. This pedagogy recognizes that the process of incorporation mediates the responsibility of the student as he takes a structure known to another and makes it his own. During this process the student himself discovers the teacher's structure, thereby achieving insight into the subject which the teacher offers him for his understanding.

The pedagogy of discovery teaching tutors the student in seeing a teacher's understanding of a phenomenon in relation to the teacher's own desire to share that understanding with him. This pedagogy expects that there will be a placing of shared goal determination into the awareness of the student. It also offers the student practice in determining specific, personal goals within a general set or range of goals permitted by the structure of the teacher's subject as well as by the personality of the teacher involved in letting another learn by himself within broad limits defined by the teacher.

The pedagogy of discovery teaching opens the door for individual action during learning. However, the application of goal determination to other areas of living involves the assumption of initiative in goal determination in the absence of a predetermined set of possibilities. This is the process of generalizing the discovery pedagogy upon which counseling focuses. The matter of choice becomes central in personal goal determination.

Guidance in Education and Vocational Maturity

Tiedeman recently applied the above analysis of the functions of guidance in education to an analysis of the general choice conditions inherent in the process of maturing.[17] The results of this analysis later led him to emphasize that choice involves the bearing of the predicament of commitment with tentativeness.[18] In this analysis of the paradox of choice conditions, he differentiated two central issues. One issue surrounds the assumption of responsibility to relate oneself to future opportunity as if there were an avenue of possibility and responsibility available. This issue Tiedeman calls *choice determination.* The second issue in his analysis deals with the evolution of goal, given the assumption of responsibility to choose. This condition he refers to as *goal determination.*

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[16] Jerome S. Bruner, *On Knowing* (Cambridge, Mass.: Harvard University Press, 1962).

[17] David V. Tiedeman, *Liberalization Through Education: A Goal and Theory of Challenge to School Counselors* (Cambridge, Mass.: Harvard Graduate School of Education, 1966), mimeograph.

Tiedeman's recent writing on the understanding and bearing of the choice paradox as a central and critical part of self-development represents a culmination of the work he initiated with O'Hara in 1963, which produced the monograph *Career Development: Choice and Adjustment.*[19] In that monograph, he and O'Hara analyzed career development in relation to a model of decision-making. Since that time, Tiedeman has worked with subsequent students, Frank Field and Gordon Dudley,[20] to delineate a way in which he could argue for the articulation of decision-making structures in individual lives without threat to the individual right of goal determination during the process of personal decision-making. As a result of this work, we believe that we now have a logical system which is both possible and appropriate. The system is mediation.

A Structure of Educational Authority Appropriate for Vocational Maturation

The central part of our position is that the cultivation of understanding of decision-making in the paradox of living takes place under educational conditions. In educational conditions involving the discovery pedagogy, the responsibilities for efficiency and initiative can be divided between counselor and teacher.

The teacher has prime responsibility for the goals of accuracy and discovery with respect to the subject he is assigned to teach. He is only secondarily interested in the emergence of insight on the part of his student during the course of discovery as well as in the growth in understanding of self-as-process under expectation for personal responsibility in learning.

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[18] David V. Tiedeman, "Predicament, Problem, and Psychology," *Journal of Counseling Psychology,* 14 (1967), pp. 1-8.

[19] David V. Tiedeman and Robert P. O'Hara, *Career Development: Choice and Adjustment* (New York: College Entrance Examination Board, 1963).

[20] David V. Tiedeman and Frank L. Field, "Guidance: The Science of Purposeful Action Applied through Education," in *Guidance: An Examination,* eds. Ralph Mosher, Richard Carle, and Chris D. Kehas (New York: Harcourt, Brace, and World, 1965), pp. 192-213; Gordon A. Dudley and Wallace J. Fletcher, *Personally Determined Career and Entrepreneurial Behavior* (Cambridge, Mass.: Harvard Studies in Career Development Number 41, 1965).

The counselor, on the other hand, has primary responsibility for seeing that the student's goals of insight and self-as-process emerge in the context of discovering a subject at school and generalizing in his awareness realms of choice in vocation and life in which goals can only be determined personally. The counselor has secondary interest in those goals which are primary for the teacher—accuracy, discovery, and commitment in relation to subjects themselves. He is interested in sharing only the expectation that the student will both be accurate and have discovered, but he cannot deny these functions in education however much he personally favors the emergence and exploitation of personal initiative in students.

The application of this model of responsibility assigns to the counselor an interest in seeing that discovery teaching is part of the educational establishment in which he is employed. The model presumes, in addition, that the counselor will have a teaching interest in the paradigm of decision-making as it applies both to choice in vocational and other life goals and to learning about self during the course of experiencing and modifying the consequences of a personally-elected goal. For this reason, our expectation is that explicit teaching in decision-making should be a part of the guidance program of an educational institution. We intend to make the teaching of decision-making explicit in counseling in an Information System for Vocational Decisions which we describe at the conclusion of this chapter. This system represents our current effort to act upon the understanding of the model outlined here.

Finally, the appreciation of paradox in choices taking place in life evolves over a period of time. In this time, the explicit concepts of decision-making become more practiced, understood, and automatic. The critical tasks of the counselor toward these ends are to analyze the *projections* about choosing in which his students engage. The two conditions of choosing in which projection must be analyzed are those previously designated—choice-election and goal-determination. In either case, the counselor has interest in ministering to projections of either an internal or an external kind. He attempts to mediate to the internal projections of guilt in ways such that his inquirer's attention to his own initiative and his practice of action under guidance of his initiative does not have anxiety and/or psychosomatic effects. He attempts to mediate the external projections of shame so that blame becomes effectively assessed by an inquirer engaged in such projections. His goal is to bring about greater awareness of evaluations and process possibilities for the inquirer during the course of discussions of such projections.

In this discussion we stress a tripartite contribution to the theory of personal development through vocational development. We believe that the mediation of occupational facts/data in an effort to turn them into occupational information for which an inquirer is personally responsible requires all three enumerated conditions: (1) a structure of educational organization including that of vocational education in which there is the expectation of personal discovery and the division of teaching and counseling responsibility in which discovery can go on without serious threat to the individual initiative and responsibility of the students; (2) an explicit teaching by counselors and/or teachers of decision-making, particularly educational and vocational decision-making, such teaching being offered in compatibility with the discovery teaching in other subjects; and (3) an evaluation and/or monitoring system which is explicitly attuned to the development of choice behavior in inquirers.

Prospects for Technology and Commerce in the Mediation of Vocational Development for Vocational Maturity

From Theory to Technology in Mediation

It is one thing to enunciate both a new goal and the structure of authority which will be required to attain that goal without serious threat either to individual liberty or to societal disintegration. It is still another thing to say how vocational maturity can be cultivated within the required structure of authority. We believe, however, that we have hit upon a good means to our end. That means will be the Information System for Vocational Decisions (ISVD).

Occupational Fact Mediation in the Environment of an Information System for Vocational Decisions

The ISVD will be fashioned to mediate choice behavior. Several aspects of that system merit emphasis now, even though we delay to a later section the fuller description of the ISVD itself.

One aspect of ISVD in need of special attention is that our word "Information" in it denotes the *placing* of facts/data *into the context of use*. Thus, the user or inquirer becomes an explicit part of our denotation of "system." We intend to place a student in potentially repeated interaction with a computer-centered environment programmed, not for prompt reinforcing of stimulus-response contiguity, but for an inquirer's personal inquiry.

A second noteworthy aspect of the ISVD is that it will be constructed so as to facilitate an inquirer's learning how to harmonize his personal goals and their consequences in a real world by means of repeated inquiries in specific realms of social activity. Because the ISVD will put the inquirer in direct relation with his evolving history and intentions to the extent that such can be motivated and represented through the numbers, letters, and processing available in computer reckoning, it becomes possible to belie the fears of those who view such automation as a process for making decisions for, rather than with, people.

This brings us to the third particularly noteworthy aspect of the ISVD. Our primary professional task, both in the ISVD and even more generally in guidance, is the construction of a meta-system which permits analysis and response in terms of the majority of the variables of anticipated personal determination. The ISVD will represent a first-time physical simulation of the "outside" which a person must first learn to bring "inside" and then to act toward knowing that it is there by knowing also that he need not be "driven" by it, and that he can place it in the service of his personally-determined career development, in the service of his present and evolving maturity.

A Structure for Mediation of Vocational Maturation in the ISVD

Three specific parts of the ISVD will define its particular contribution to the needed process of mediation. One part is the set of media themselves. The ISVD will attempt to take advantage of all the gains in mediation now available to us because of a variety of media-work.[21] The output media designed into the ISVD will include films, film strips, slides, taped messages, and printed reports provided by means of both cathode ray tube and hardcopy printer. The input medium will be the typewriter keyboard. A light pen operating in conjunction with the cathode ray tube is an expensive possibility not now included.

A second mediational part of the ISVD will be its materials—the best of findings in vocational development. These findings will include the aforementioned greater motivating and more socially detailed materials now being brought into occupational facts/data because of the study of vocational maturity as well as materials on opportunities, their characteristics, and projected possibilities. Materials will eventually, but not immediately, include a newly constructed curriculum designed specifically for the mediation of the developmental tasks of career decision-making and development.

A third mediational part of the ISVD will be the computer modulation of access and response in a time-shared mode. The modulation of the totality of formally construable career development through computer control brings timing and supervision into focus in the mediational process for vocational maturation. Timing will be important in terms of (1) frequency of access, (2) sequence of item presentation and data processing and the monitoring of response, and (3) intervals between all three kinds of parts. Supervision has importance in terms of (1) the monitoring built into the inquirer-machine interaction itself, (2) the monitoring of the counselor in his supervision of the inquirer-computer interactional environment, and (3) the monitoring of the vocational educator as he engages persons in the tasks of role assimilation which follow upon the making of a vocational choice, however tentatively that choice is held, and the undertaking of vocational preparation.

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[21] Perrone and Thrush, "Vocational Information Processing Systems . . . ."

The ISVD will be on the frontiers of all three realms of the mediational process designed for vocational maturation, However, as Holtzman shows,[22] and Cooley and Hummel will soon elaborate for the field of guidance,[23] the ISVD will not be alone in any of its approaches to this condition. Universities and other nonprofit and profit-making organizations with personnel for technological development in education are now participating in developing the parts of the mediation needed for vocational maturity. There is considerable mass now existing for creation of occupational fact mediation.

Mediation and Decision-Making Development

Mediation of Facts

Additional approaches to mediation are dictated by the general psychological condition in relation to specific vocational goal and choice determination in the evolution of occupational identity. At the outset of this chapter we rejected two assumptions which pertained to the nature of knowing and the known. Regarding the first assumption, we asserted that knowing and the known ought not be presumed to comprise a direct, linear correspondence, both in the abstract and as we realize them as dimensions of particular circumstances.

Presumption of a direct linear relationship between knowing and the known may well exist in other scientific disciplines that deal with impersonal objects. For instance, it is possible to state the sum of the salaries of general practitioners, divide by the number in the population, and get an average. This can be done again for surgeons. The two averages can then be compared, and it will be seen that surgeons earn more on the average than general practitioners. A person who does this then possesses an abstract fact based upon a direct linear relationship to the salaries of surgeons and general practitioners. If a guidance counselor or the ISVD presents such abstract facts and stops there, it is only performing one of several functions, and that one is only introductory to the primary function of assisting a student to mediate between these facts and his growing and developing vocational identity.

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[22] Wayne H. Holtzman, "Conference on Computer-Assisted Instruction, Testing, and Guidance," *Items* (New York, Science Research Council), 22:4, pp. 43-48.

[23] William W. Cooley and Raymond C. Hummel, "Systems Approaches in Guidance," *Review of Educational Research* 39 (April 1969), pp. 251-62.

O'Hara has contrasted the direct-relationship type of knowledge with personal understanding by citing $c^2 = a^2 + b^2$ as an example of an abstraction that is apart from life, a kind of pure intellectual learning.[24] He compares this with a second fact: a great many men with degrees in forestry work indoors at desks. For boys considering forestry, this statement is probably not abstract; it is concrete and it may be shocking to a young adolescent ambitioning for the rugged outdoor life.

We acknowledge that abstract data do exist. In fact, the proportion of foresters working at desks is an abstraction. Many people could learn it as an abstraction but it would be irrelevant to their lives. For boys considering forestry, it cannot be irrelevant. The presentation of data and facts like these is only the beginning of the process of mediating between the student and his career. To move the student from a state of fantasy about his career to one of increased vocational maturity is to be involved in mediation. To do this, the student must have the opportunity to explore the meaning that the average salary of surgeons and general practitioners has for him, to explore the meaning that working outdoors has for him, and the meaning that working indoors has for him.

Here we come to the second assumption which we rejected—that society can select those aspects of the known and the knowable which shall be most effective in determining a subsequent course of events toward an end that we value. We acknowledge society's right and obligation to select those aspects of the known and knowable which it deems necessary to its preservation and then to transmit these through education. Difficulties arise in all societies and institutions when they strive to go beyond those things necessary to their preservation and begin to command things less necessary. So there is needed a continual re-examination of what is necessary and what is not. We acknowledge society's right to mandate reading, writing, and arithmetic. At present, such knowledge seems necessary and its demand therefore reasonable. We acknowledge the right of professional and other institutions in our society to mandate standards for performance. These, too, need re-examination from time to time. But this still leaves an immense area of goals and procedures within which a student should be permitted to move freely. Even among those goals and procedures which are mandated, we must not strive to predetermine the meaning which these goals and procedures will have for the person. Otherwise we will stunt our student's growing capacity for self-correcting activity.

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[24] Robert P. O'Hara, "A Theoretical Foundation for the Use of Occupational Information in Guidance," *Personnel and Guidance Journal* (March 1968), pp. 636-40.

As noted by O'Hara,[25] the realm of the counselor is the realm of action. In that realm we must deal with personal, unique, idiosyncratic meaning systems which direct vocational behavior. The so-called objective meaning systems of the "outside," from whatever source, must resonate with the singular meaning system if there is to be a harmonious functioning of both inside and outside systems when the person chooses and implements his choice. We are not being merely Ciceronian when we use the three adjectives "personal, unique, and idiosyncratic" to modify "meaning systems."

By "personal" we emphasize the fact that the whole composite of biological, physical, emotive, conative, and intellectual functions are in action when someone is learning.

By "unique" we emphasize not the person's man-ness—not what he has in common with other men—but what is sole and singular, what is *one* about his meaning system and the relations it has to outside meaning systems.

By "idiosyncratic" we emphasize the fact that the personal and unique system is made personal and unique by a commingling of the elements involved in it in personal and unique ways. Hence, we are emphasizing the valuing process involved in the structure of the meaning system. The valuing process is the heart of the overarching process of differentiation and integration.

> Thus one major hypothesis about career development . . . is that those people for whom the world of work has the greatest meaning consonant with their own previously developed meaning system will find the greatest satisfaction and success in their work.
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> We have here fused two worlds—the unique world of the individual and the unique world of work. Vocational guidance should be the catalytic agent in this fusion.[26]

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[25] Robert P. O'Hara, "Thought and Action in Guidance," *Guidance Journal* 6:2 (Fall 1967), pp. 242-47.

[26] Tiedeman and O'Hara, *Career Development . . .*, p. 51.

The knower must *experience* (ex-per-eo) the known or the knowable. He must go through from the outside, interact with the known or knowable. Mediation consists of the interaction by means of the "array of procedures" whereby the experiencing may take place.

Some procedures may be in common, some unique, but the learning is always personal, unique, idiosyncratic. It is precisely this mediation of uniqueness that is the function of the guidance counselor, and that distinguishes his primary role from his secondary role which involves communication of generic kinds of knowledge about the world of education and the world of work.

Mediation by Negation

The example of the boy thinking about forestry gets at one essential way in which the mediational process takes place. Choice is an affirmative thing, but the mediation that leads to choice, particularly in the early years as the personality gradually grows and develops, involves negation as well. By affirming and denying in the areas of interests, values, and abilities in relation to successive discontinuities, the student pursues the differentiation necessary prior to integration in career development.

In the process of differentiation there are at least three kinds of negative resolutions of the data. The first is formulated in the following manner: "I *cannot* do this, or this; therefore, I shall do that." Such a negative understanding is ordinarily based on a lack of aptitude. While the most obvious thing regarding aptitude may be the immense overlap in scores between majors or occupations, it is still true that there are minimum levels and that as a person drops into the lower third, the chances for success decrease and are complicated by the increasing need for the presence of other variables such as high achievement drive or high status drive. All of these elements require some form of differentiation which will crystallize out the elements involved—the fact of overlap, the fact of minimum levels, the position of my aptitude score in relation to these two facts, the importance I attach to aptitude in relation to other variables.

Another example of negative resolution may underlie the data on choice of college found in two follow-up studies of high school seniors in the greater Boston area. They indicate that over a twenty-year period, an average of 88 percent of the students attend schools and colleges within one hundred miles of the greater Boston area. Back of this observable fact are undoubtedly many reasons, but it is probable that the first of these is economic. Students say, "I do *not* have the money to go to Cornell; therefore I will go to Northeastern."

Lack of money does influence the choice of college. Action taken on this basis needs to be looked at as negative. In cases where the economic factor is the chief negative influence, we may have a force that impinges upon healthy vocational identity formation, because the school system and the dominant culture through the mass media may insert a long-lasting wedge of contradiction, consisting of the possibility of vocational fulfillment and the actuality of it through the local college.

A third type of negative resolution is the "I *don't like* this and this; therefore, I *will not* do them." Now it seems clear from the literature on interests that at least, for most of the college graduate portion of our population, interests are a major factor in choice of college and major. Negative decisions constitute a major part of every interest inventory. But we are not instituting programs based on our knowledge that interests develop, grow, and change. They are affirmed and denied. They crystallize in late adolescence or early adulthood. Then, in later years, new interests may develop, resulting in further growth and change.

But we are not truly assisting students to differentiate in this manner. We are not truly assisting them to mediate. We tend to act as if interest and value scores are abstracts, absolutes, categorizing in logical fashion once and for all. This is not so. Interest and value scores are only more data to be fed into the mediational process and seen in relation to occupations and the student's growing vocational identity. In this process of juxtaposition, the essential function is to provide the student with the opportunity to explore the *meaning* test scores and occupational facts have for him.

The negative mediational process can also be seen as a discontinuity. The choice of vocational education or of college and major affords perhaps a first occasion when the young man in search of vocational identity is forced, by the necessity of choice, to recognize that one cannot do all the things one is interested in, that one must make choices, that choices inevitably mean saying "no" to some things one may not yet psychologically be in a position to say "no" to. For the young man in such a state of development, hopefully, the resolutions he makes will lead to better integration of the remaining elements and, therefore, to fulfillment of the personality. At the very least, they most assuredly result in the sometimes painful process of vocational maturation as all maturation is only sometimes joyful.

Because the interests of our talented boys are broad, career decisions regarding college and major are very difficult to make, particularly if one has no bench marks whereby to differentiate, to gauge the level, strength, and quality of one's varied interests. Knowledge of the level, strength, and quality of one's interests may lead to a

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modified negative resolution which may at first take the form of relegating secondary interests to the hobby state rather than cutting them off altogether. "When to the heart of a man is it ever less than treason to go with the drift of things, to yield with grace to reason, to bow and accept the end of a love or season."[27] But such secondary decisions are immensely fruitful.

Mediation of Needs

The student will take vocational action to satisfy vocational needs as in general he takes general action to satisfy general needs. Unless there is a vocational need, there will be no vocational activity. When there is no vocational activity, there will be no vocational learning. Thus, vocational need is the deciding factor in determining whether or not the person will take some action in a given vocational situation.

The writers here define vocational need as meaning a state of vocational dissatisfaction in the person, and the activity resulting from this state is an effort to reduce the dissatisfaction and produce a condition resulting in increased vocational satisfaction.

At various discontinuities in life, the intensity level of dissatisfaction and satisfaction is in constant flux, with successive surges of dissatisfaction leading to crests of vocational satisfaction, followed again by surge and crest as vocational goals change, are perceived, striven for, and achieved throughout life. The stronger the vocational dissatisfaction, the higher will be the level of activity of the vocational learner.

One of the chief functions of the counselor is to determine the student's level of vocational readiness in relation to a given discontinuity. The origins of vocational readiness undoubtedly lie in the many elements studied by psychologists in relation to kinds of learning other than vocational learning. Among these are knowledge, mental ability, chronological age, emotional maturity, psychological and social maturity. However, in this chapter, we deal principally with knowledge as an aspect of readiness.[28]

Each forward movement toward the vocational goal is affected by the student's efforts to review and redefine his earlier vocational knowledge, experience, and reactions so that they may be applied to, or changed for, the new vocational situation. Change in vocational behavior from a previous kind or reaction will take place as a result of an awareness of inadequacy in the earlier form of vocational behavior. This awareness may be only vaguely felt as a disquieting influence at first. Gradually, awareness of inadequacy and a new response is called for which is now newly seen as adequate. The counselor is involved in mediation of inadequacy, and critically in the mediation of the new response. This kind of vocational realization comes about through perception of the new goal with its new and unique attributes, and perception of new vocational means to this goal. As a result, there is reorganization and redirection of vocational behavior toward the new goal. The development of vocational knowledge and vocational skill involves a sequence of actions and reactions in which vocational experience and vocational behavior are gradually and successively changed and altered in many qualitative ways. This process should not proceed randomly, but should be guided just as academic experience and behavior are guided.

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[27] Robert Frost, "Reluctance," in *Complete Poems of Robert Frost* (New York: Holt, Rinehart, and Winston, 1968), p. 43.

[28] Donald E. Super, "Vocational Development Theory: Persons, Positions, and Processes," Washington University Symposium on Vocational Development Theory, St. Louis, July 30, 1968; O'Hara, "A Theoretical Foundation . . . ."

The vocational needs we are talking about are acquired needs. They are a part of the American way of life, but vocational development, as we view it in the United States, is not an aspect of the development of boys and girls in every culture in the world. Even in our culture today, the perceptions of work and career are undergoing some changes, and our approaches to vocational guidance must take account of these changes. Thus, the needs of the vocational learner are the result of a socializing process. Since we are all socialized in different ways, our states of vocational need will vary greatly. No two people have the same vocational experiences. Thus, vocational needs will vary with the person experiencing them.

Mediation and Readiness

How a person will respond to a vocational situation depends on the nature of the situation, but it also depends on controlling elements in the learner. These controlling elements are predispositions to respond in a certain way. We can call these vocational predispositions the state of vocational readiness. This socially created state controls the expectation one has for what is likely to lead to what. Expectations arise from prior experience. For example, an aspect of vocational readiness is the awareness on the part of the child that open consideration of career choices may lead to social approval from parents, counselors, teachers, and adults in general. The opposite could also be true: a child would expect opposition if he strove to consider openly a career outside of the vocational expectations of his parents.

The vocational expectations of the student also exercise control over his attention—the notice he takes of objects in any situation and the vocational responses he will make. For example, at a career conference, a lawyer is speaking of a legal profession as a career. Tom listens intently to everything that is said. He has developing interests in law, and he sees no contradictions between his present self-image and the vocational image presented by the lawyer. Later he talks it over with his dad and begins to study harder for college.

A second boy, Dick, spends his time writing notes to his girl in the next row. The lawyer's presentation has no relationship to his developing vocational self which at this moment is relatively undefined. He came to the Career Conference to get out of Latin class.

A third boy, Harry, has wanted to be a lawyer since the age of ten. His elementary school grades were all A's. When he began the college course in high school, a few B's appeared on his record. Now in senior year, he finds it impossible to get better than C's despite the fact that he spends five hours a night on his homework. He currently stands in the lowest third of his class. Harry is carried away by the speaker's description of the work and rewards of the legal profession. When the speaker says that the aspiring law student should be in the upper third of his class in high school and college, the thought is denied symbolization. As soon as the speaker began to speak of the scholastic requirements, Harry heard but did not "hear," because the facts were inconsistent with the ideal self-structure that he had been building up for the past eight years. The facts were available to consciousness but were not consciously perceived.

Clearly, what is vocationally significant in the situation described above depends entirely on the learning which has preceded entrance into the Career Conference. Vocational readiness, therefore, means the disposition to give personal meaning to or personal response to vocational facts and data provided by the environment. Both counselor and student are mediators in this response.

It is the function of the guidance counselor to provide vocational facts and data suitable to the vocational goals of the student. At this point we are not advocating "forced feeding" of vocational materials to students. It is perfectly clear that a slowly developing student will set his own pace, and it will probably be useless to hurry him. On the other hand, we clearly need to research the proper method of mediating vocational maturation with guidance effort to manipulate the environment and provide vocational practice and training. The counselor must study the student's developmental pattern as evidenced in his social, psychological, and academic growth, and choose vocational materials and counseling methods which fit the student's stage of readiness in relation to the various discontinuities with which the student has to deal. Counselors need to plan intelligently a whole series of vocational mediations adapted to the varying paces of students in their schools.

An obvious difficulty enters here, that is, that the environment imposes some goals on all students simultaneously, despite the fact that levels of vocational readiness differ. However, this problem as a problem is no different from that posed by the necessity for learning a given academic subject at a given grade level—for example, fractions. As students move into higher academic levels, however, increasing freedom in the choice of academic subjects is permitted. The environment expands its boundaries. Concomitant with this kind of expansion, the environment imposes the need for vocational decisions at each grade level. Thus, there is simultaneously imposition of restriction through the necessity of choice and an enlargement of the number of options. Counselors, then, have no small job as they strive to present suitable data and facts. They are aided, however, by the formal social structure of the academic environment in which a student moves from grade level to grade level, expects increasing freedom as he grows older, expects decision-making regarding courses in the next grade level to occur in the spring, and has all of these expectations reinforced by involvement of family and peers in his academic process.

We take the position that there must be conscious and continual effort on the part of counselors and counselees to relate these educational decisions to occupational possibilities in the world of work, and to the growing vocational identity. In so doing, the counselor begins early in the vocational development of the student to introduce consideration of and movement toward that identity which for most men and women in the world of work is their principal identity. In this manner, counselors then create a state of readiness for specific occupational decisions which occur later in life.

Vocational facts and data must be distinctive; that is to say, the vocational learner must be able to differentiate those items that are important to him from those that are unimportant. Note that the occupational items are always seen in relation to himself. In order to be able to rank them in importance, the student must have some clear understanding of self. In the case of Harry cited above, there is clearly some knowledge and understanding of self, but also some ignorance or denial of knowledge; thus, Harry is unable to distinguish this datum as provided by the speaker. In such a case, the counselor, treading very softly lest he injure the ego, must provide the contrast between the academic achievement required for lawyers and Harry's academic development.

In order to mediate in a given discontinuity, counselors must also proceed by assisting the student to affirm and deny in all areas related to the discontinuity. In a formal academic learning situation, the teacher can structure a lesson in such a way that some facts stand out from the background of the total learning situation. The learner is then able to distinguish important facts from unimportant facts. But when a student needs to resolve a guidance problem, the counselor is limited in the way he structures the situation because of the necessity for dealing with the student's unique meaning system. Here again we face the problem of generic method and unique meaning. The writers take the position that counselors must, for example, outline the elements associated with jobs—nature of the work, entrance requirements, salary, working conditions, and so on. The counselor must make these facts, as a group, distinctive, but his mediating function lies not in the communication of this generic information, but in the ways in which he assists the student to attach valences to the elements associated with jobs, so that the student then distinguishes the important facts from unimportant facts in the total situation in relation to himself. This capacity to differentiate can be developed by introducing the student to the notion of comparison and, particularly, the comparative actions involving contrast; for example, contrasting the income of surgeons with the income of general practitioners. Contrast can also be created by comparing the $50,000 income of a pig farmer with the $50,000 income of a general practitioner. This kind of vivid and colorful illustration can force a student to recognize that money is not the only element involved in career development.

Mediation and Maturation

The ability to mediate problems posed by each discontinuity is limited by the level of vocational maturity of the student at the time the vocational learning situation occurs. What we are saying here is that there are educational limits to what we can assist students to mediate. Perhaps until late adolescence, these limits are set in part by organic development. Organic development influences the learning of infants in walking and talking and seeing, but we do not know how these kinds of organismic developments influence the development of vocational maturity.

On the other hand, maturational readiness does not stem solely from organic development. It also depends on varying levels of psychological performance. For example, since the vocational learning situation is always a problem to be solved that in part involves knowledge, the resolution of the problem depends on the kind and level of mental maturation. Mental development is clearly an active internal thing which manifests organization and change in the quality of the activity as the child grows older. Since we do not know the limits of intellectual development at various ages, we are unable to specify in more than a general way its influence on vocational development.

The existence of this kind of a maturational principle could lead guidance counselors to conclude that activity intended to assist vocational development might be useless. But this is to assert that growth is the only element involved, which is clearly not the case. Internal growth factors alone do not completely explain mental inequalities. In the same way, vocational development is a function of not only internal growth factors, but objects and people in a social situation, opportunity to explore functions involved in the vocational choice process, and formal training in the what, how, and why of vocational development—in short, mediation.

The problem of vocational maturation is complicated by the fact that it is not purely a question of learning academic knowledge. Vocational development also involves general psychological development and the development of attitudes, interests, and values. While it is clear from research that massive manipulation of the environment can cause some differences in intellectual development and educational achievement, it is more clear that environmental manipulation can cause greater differences in personality, attitudes, interests, and values. If we accept this last statement as fundamentally true, then it is clear that counselors have, if possible, an even greater obligation to create a vocationally rich environment for students in their schools. That aspect of this environment with which this paper is primarily concerned is the acquisition of knowledges, attitudes, and values in relation to the world of work.

Mediation of Goals

As we noted earlier, vocational maturity centrally involves the evolution of goals in the evolution of a choice. O'Hara has already noted that the creation of vocational goal directedness is a major problem in the elementary and secondary school years.[29] Students in these early grade levels are only minimally involved in the world of work. Vocational need and awareness are at a very low level. As a result, students seldom notice or have opportunity to respond to occupational data or facts. At this stage vocational goals are vague and unnoticed. But learning requires clarity and precision. A well-defined vocational goal has great motivating power, and the learner's vocational expectancy becomes very definite and helps to organize the vocational behavior. This kind of definiteness is seldom present in the early stages of vocational development. The vocational problem is generally posed in educational terms; rarely are these educational terms related to the vocational world. Thus, indistinctness of the vocational goal is a function of its remoteness.

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[29] O'Hara, "A Theoretical Foundation . . . ."

Mediation in Choice

Counselors can deal with immediate goals, that is, with the choice of next year's curriculum, with the choice of next year's courses, with good marks in those courses. But it seems to the writers that, because of the indistinctness and remoteness of the real vocational problems, guidance personnel have an obligation as well to impose a formal learning situation with formal academic sanctions in order to mediate the selection of goals necessary for increased understanding of the world of work and the possible responses to it. At this point, we are suggesting that in the early stages of vocational development, extrinsic vocational goals are necessary if choice election is to be facilitated. We recommend study of the process of career development, study of occupational facts and data, for the purpose of increasing formal knowledge about careers. As we do such studies, we will learn more about how responsibility for both remote goal determination and choice-election interact with each other.

The immediate goal in this kind of vocational activity would be a high score on a test of occupational knowledge or a grade in a course on career development. This kind of goal is extrinsic. The decisions to achieve it are academic decisions, but the consequences are not merely academic. The consequences are a mediation of the goal-setting process by an expansion of the occupational horizons of the student into a general choice context. Thus, with achievement of academic satisfaction, the student achieves simultaneously vocational satisfaction in that he has broadened his knowledge and understanding and feels less tension in the vague and indistinct vocational situation in which elementary and secondary education necessarily place him.

ISVD: A Computer-Based Information System for Career Decisions[30]

In Prospect for Computer Technology

Our major aim in this chapter is to introduce computer technology into the concept of mediation. So far we have indicated that a new goal of vocational maturation for all brings with it the need for mediation of the vocational development process. We have also outlined a structure of authority and responsibility for person, teacher, and counselor in which mediation may occur without challenge to individual freedom when our new assumptions about mediation specify the relationship between knowing and the known.

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[30] Other principal investigators of the Information System for Vocational Decisions are Russell Davis, Richard Durstine, Wallace Fletcher, Edward Landy, and Michael Wilson.

Our efforts in the previous two sections were intended to introduce a new instrumentality for this mediation, an ISVD. We started by indicating the general relationships of an ISVD dictated by our structure. We then detailed specification of the psychological conditions which must be involved in an ISVD structure if it is to relate adequately to individual, teacher, and counselor responsibilities. We now return to further procedural specification of an ISVD. By doing so we suggest the technological structure of computer and society which undergird the psychological processes discussed above.

The intent of the ISVD is to place an inquirer in potentially repeated interaction with a computer-centered environment programmed for his inquiry, not just for prompt reinforcing of stimulus-response contiguity. The contexts for the inquiries will be education, occupation, military service, and family living. The inquirer may elect at will among contexts. The System will be constructed so as to expect the inquirer to learn how to harmonize his goals and their consequences by means of repeated inquiries in these four important realms of personal activity.

As required by the principle of mediation, we stress that the primary goal of the ISVD will be inquiry, not reinforcement. Because our System will put the inquirer in direct relation with his evolving history and intentions to the extent that such can be motivated and represented through the numbers, letters, and processing available in computer reckoning, it becomes possible to avoid one of the fears which the public has of using computers in guidance, namely, the fear that computers will determine lives by making decisions *for*, not *with*, persons. Our System will let any inquirer experience practically the same joy and frustration which computer devotees daily do—the realization that the answer is in a devotee of computers, not in the machine. Despite our occasional regret upon such realizations, we know that we still persevere. Therefore, the assumption of the ISVD will be that any person can and will persevere through inquiry. A further assumption is that repeatedly-experienced failure to find full solutions to questions can be fashioned into mature capacity to proceed on inadequate bases in adult life as an inquirer is brought to realize the care we used in fashioning a System which can take him down the path of, but never completely into, awareness of the operation of his motivational system.

We plan assembly of a System different from that now imagined in computer-aided instruction or in educational data processing. The ISVD will subsume those conceptions as intermediate in the condition of education for responsible career decisions. However, our primary professional task will be construction of a meta-system which permits analysis and response direction in terms of the majority of the variables of this expected responsibility.

How do we intend to do this?

The Career and Choices in Career Development

The context of vocational decision-making offers excellent opportunity for realization of our intention when the computer is given centrality, but necessary incompleteness, in the interacting system in which career development emerges. As indicated,[31] we define career as personally-given direction in developing vocational maturity. We bind a career with expectation that the exercise of personal intention brings with it accountability for self-directed and corrected activity. Therefore, we expect that career development requires emergence of self-initiated and controlled activity for which a person permits himself to be held to account. When persons do so, we have opportunity to give power to the process of social control by encouraging the independence of freedom and the interdependence of social consciousness.

The forming of career involves a set of decisions which are made throughout life, in the joint contexts of education, vocation, military service, and family. The object, plan, and progress of decisions in each of these areas have their own characteristics. The socially-determined choice contexts in which progress in career takes place are as follows:

Education. There are six primary choice contexts in which educational histories are forged. Each also has a subsidiary context which we also note. The primary contexts with their subsidiary contexts are:

1. *Choice of secondary school curriculum.* The subsidiary choices relate to the kind and level of curriculum and to the specification of skill area within each kind and level.
2. *Choice of post-secondary education.* Subsidiary choices in a post-secondary education election include the kind and level of opportunity. As a final choice of post-secondary education nears, a specific school and/or college must be differentiated from a more general choice as a part of a post-secondary education placement function.

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[31] Tiedeman and O'Hara, *Career Development* . . . .

3. *Choice of a collegiate major.* The choice of college major involves choices of kinds of majors and a differentiation of potential emphasis in terms of analysis, synthesis, and/or reduction to practice in each of the kinds of areas.
4. *Choice of a graduate school.* The graduate school choice is similar to the choice of a college.
5. *Choice of a graduate specialization.* Specialization in graduate school continues the specification of prior college majors in the several areas of knowledge. However, at this time the emphases on analysis, synthesis, and reduction to practice must become clear cut and must be pursued avidly. At the master's level there is likely to be an emphasis on the technology of a subject; at the doctor's level the emphasis is on professional activity.
6. *Choices related to the further refining of occupational location by both job and position emphases within general vocational activity.* These job and position choices find inter-relation with endeavors organized as continuing education.

Vocation. Three primary choice contexts are associated with vocational development itself. Each primary context also has its subsidiary contexts. The primary and subsidiary contexts are:

1. *Entry job.* This choice involves a first choice of kind and level of occupation. As entry into work nears, the choice must be sufficiently differentiated so that work is initiated in a specific job. This differentiation involves occupational choice with the placement function.
2. *Job progress.* Choices bringing about job progress initiate emergence of a career. If a person attempts to conceive his job movement in a personal historical context in which he conceives his own vocational activity as progression, he initiates career considerations into his vocational development.
3. *Position and career choices.* As a person develops a sense of progress in his occupational activity, he begins to focus upon jobs, not occupations; then upon positions, not jobs; and finally upon career, not work. These kinds of choices become salient around midlife, if they become salient at all.

Military Service. Three primary kinds of choices are associated with the military service aspect of vocational behavior. These primary contexts are:

1. *Kind of service.* The person must differentiate between army, navy, marines, coast guard, and air force.
2. *Level of service.* A prime issue at the beginning of military service is the distinction between enlisted and officer status. Some persons start right off to prepare for officer status. However, in either status, promotion also becomes an issue in its proper time as determined by the regulations of a service.
3. *Specialization.* Within enlisted ranks in particular, choice of specialization becomes important. In the officer's ranks, specialization is likely to be present but not stressed to that degree which it is stressed in enlisted ranks.

Family. There are two primary contexts for choice in the family area. They are:

1. *Marriage.* There must be a decision about marriage or not. If marriage is elected, a further decision relates to when in life it should occur and/or reoccur. As noted, the marriage context also involves a choice about continuation in marriage, with divorce being the legal means for separation, termination, and potential reinvolvement.
2. *Family.* Style of life in family is also an area in which choice takes place. This area involves choice of size of family, location of household, culture with regard to extended family living, and amount of balance of time among work, family, and recreation.

The System

General Framework. As has been previously noted, the ISVD is deliberately named despite the fact that our connotations for its words are not presently entirely a matter of common parlance. Our word "Information" connotes the placing of facts/data into the context of use. This use of the word emphasizes our belief that facts/data require their context of use if they are to be conceived as information.

Students and workers are to be permitted to turn educational and occupational facts/data into information through the System. Thus the user becomes an explicit part of our connotation of "System." Our connotation reflects our intention to offer the user complete responsibility in choice of educational and vocational goals. Although it is probably inevitable that the computer will be blamed for "error," we do not intend to let users of the ISVD enjoy the luxury of that impression without contest.

Data Files. The ISVD will have a data file for each of the previously noted four areas of living: occupation, education, military service, and family. Data in each file are to range from general to specific. In addition, data will attempt both schematically to represent the present and to outline the future for a decade or so, such outlining to be in small time-increments. These specifications obligate the System both to deal with local job markets and to incorporate data on local job vacancies which will be helpful in placement suggestions.

The fifth data file in the System will contain inquirer characteristics. This file will be in two parts. One part will deal with characteristics of inquirers in general and will report on relationships of these characteristics with later choices and successes of those inquirers. This file will be used both to suggest alternatives to users who need wider scope for consideration and to subject aspiration to the test of "reality" when the user is in a condition of clarification of a preferred alternative. The other part of the inquirer characteristic data file will be the private educational and occupational history of the user as portrayed in his context of developing justification for his preferences and their pursuit and consequences.

Decision-Making: The Paradigm for Choosing. Reflection upon facts/data of the several areas will be encouraged with the expectation that the facts/data will be put to personal use, and the user will be expected to become guided by our paradigm of vocational decision-making.[32] The paradigm essentially conceives decision in relation (1) to the passage of time, and (2) to the undertaking of the risk and activity required to achieve what one elects to achieve. This conception permits division of the time interval into a period of anticipation and a period of accommodation. Anticipation occurs before the activities of a discontinuity become required; accommodation occurs after activity is required. Stages of exploration, crystallization, choice, and clarification are distinguished within the period of anticipation. Stages of induction, reformation, and integration become possible within the period of accommodation. Distinctions among these stages will have to be a central part of a MONITOR computer routine in the ISVD.

Computer Routines.[33] Computer routines and supporting materials will be fashioned to conform with expectation that this vocational decision paradigm both exists and can become explicit and useful to someone who practices its use. The paradigm will determine the computer routines which we will develop to permit access to each of the data files and to provide data upon request. There will be three primary computer routines: REVIEW, EXPLORATION, and CLARIFICATION.

The REVIEW computer routine will permit call-up and comparison of a prior statement about a then future event both after that expected future event has occurred and after the user has provided indication of how his prior expectations were fulfilled before he sees his prior statement of those expectations. The procedure will expect a person to experience insight with regard to consistency and inconsistency available during comparison, and to learn from such insight that his own intuition guides his activity. The intended outcome of REVIEW is that the user learn from his history.

The EXPLORATION computer routine will allow the person to rove through a data file as near randomly as possible. The routine will encourage use of randomness largely at only general levels of materials in order to conserve time but will not forbid specific exploration if, and when, desired. Furthermore, routines will be developed to suggest alternatives on the basis of comparison of personal characteristics with established associations between such characteristics of others and their preferred alternatives. The intended outcome from this routine is (1) emergence of a set of alternatives, and (2) the bases on which the alternatives are preferred. We emphasize this latter point in an effort to increase the reader's awareness of the reasoning process that is actually involved in career development.

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[32] Ibid.

[33] The basis for this plan is due to Allan B. Ellis.

The CLARIFICATION computer routine will be available after specific alternatives are selected. CLARIFICATION will take the user into queries about the depth of his knowledge concerning the then favored alternatives and the understanding of future alternatives which are likely linked with present preferences. The outcome desired will be the dispelling both of some doubt and of some ignorance concerning the next step in the progress of career which the person is evolving. Lessening of both doubt and ignorance is likely to increase the user's confidence in meeting the required activities of his next step.

In addition to the three primary computer routines, MONITOR will be available as the only secondary computer routine. It will essentially consist of the evaluations which we are able to concoct to determine existence of mastery of stages in the paradigm of vocational decision-making. For this reason, it must be able to play back into, as well as over, the computer inputs which the person generates. There will be three essential aspects of MONITOR. The first will be the procedure which we concoct and program the computer to provide. The second will be the bases on which we have caused our judgments to operate among the data put in by the person during his interaction with the computer. The third will be the basic computer routines themselves which the person will be taught to use if and when he desires to have them. This latter aspect will make it possible for the user to write his own monitoring bases to some extent and to have these monitoring procedures play among his material, as ours did originally. We hope through MONITOR to encourage mastery of the concept of feedback and to give practice and supervision in its application.

Materials. The computer routines will incorporate the vocational decision-making paradigm. We do not expect that the computer will itself be sufficient to mature fully the capacity and confidence for use of the decision-making paradigm. We will therefore design two other activities into the System in its totality. One of these will be the simulation of decision-making. Simulation will be available in (1) games, (2) booklets in which the concepts are taught, and (3) decision problems of a vocational nature which must be solved in interaction with the computer.

The second of our other activities, which we hope will further mature the use of the paradigm of vocational decision-making, will be the provision of responsibility for work under laboratory and practice conditions. In laboratory and practice, reality can replace imagination if there is intentful supervision of users as they practice. This supervision will probably be of the same nature as that employed by counselors with users as they are engaged in the simulated activities of vocational decision-making during the user-computer interactions.

Career: The Maturation of Personal Responsibility Through Vocational Development

We have attempted to show that the ISVD will expect choice and will cultivate the capacity for, and confidence in, choosing by giving users an almost infinite possibility for the exercise of decision-making among data files while simultaneously attempting to make the processes of decision-making both explicit and mastered. These are elements in vocational development which have previously neither been unified in this manner nor made available for practice in modes in which complexity is possible but time is not of the essence, at least not the time of persons other than the person engaged in the exercise. The existence of the ISVD will therefore be a first-time physical representation of the "outside" which the person must first learn to bring "inside" and then to act toward knowing that it is there but that he need not be "driven" by it if he is the master of it.

In its totality, the ISVD will represent "reality" in its data files, offer processes for working with facts/data through its primary computer routines, and provide practice under supervision through (1) its secondary computer routine, (2) its simulation of decision-making, and (3) its personal supervision (a) by a counselor of the person in interaction in the computer routine, and (b) by a vocational educator as the student user assumes real work responsibility in laboratory and practice work situations.

An Economy for Mediation of Occupational Facts: The Counselor and His Mediation of Vocational Maturation

Summary and Challenge

McLuhan and Fiore use their book, *The Medium Is the Massage*,[34] to convey awareness of a quoted statement attributed to A. N. Whitehead: "The major advances in civilization are processes that all but wreck the societies in which they occur." We elect to summarize and conclude on this profound and somber a note.

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[34] McLuhan and Fiore, *The Medium Is the Massage.*

We have attempted in this chapter to make our readers aware that we are on the frontier of a new era in vocational guidance. In this new era the recent knowledge in vocational development and in media can be combined to mediate vocational maturation by the massage of self-development, with the computer controlling a great deal of the timing and logical process of wedding vocational development materials and media presentation. Our realization of this new possibility in our society would constitute a major professional advance on the order of the civilization advances to which Whitehead alludes. Maturation for self-awareness in career constitutes a change in our civilization not now accepted in our educational and labor establishments. If we vocational educators and counselors can conceptualize that advance, advocate it, demonstrate it, and sell it, we will have massaged ourselves and our society so that we may all but wreck both. However, we remind ourselves, in conclusion, that the mediation of this process of incorporation is the professional forte of counselors. Therefore, counselors are convinced that they can both incorporate the change we have outlined into their repertoires and personality and see that the new technology can mediate vocational maturation for all citizens without disaster in our society. It's worth a try. It's now within the realm of our possibilities.

New Frontier and Its Needed Economy

Government and profit, as well as technologically grounded nonprofit, organizations are now each carefully scrutinizing the technology associated with counseling and guidance.[35] Under such scrutiny, interest, and potential competition, guidance technology is likely to experience marked change in the near future, probably within the next ten years. Let neither vocational educator nor vocational counselor be frightened of this potential for change. Instead, let's get ourselves informed of it. Let's keep watch over its theory and thereby give direction to its evolution. We believe we all can do so if we remain interested in mediation for vocational maturation, not just in media for vocational development.

A prime question in the changes which are on our frontier has to do with the construction of an economy in which industry can profit.

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[35] Cooley and Hummel, "Systems Approaches in Guidance"; Perrone and Thrush, "Vocational Information Processing Systems . . . ."

We do not mean to frighten counselors, but we do suggest that counselors ought to stay "loose" as this economy is reformed. There will be more than enough compensation for each counselor. But what is needed?

Marvin Adelson, System Development Corporation, recently only half-jokingly suggested to the Panel on Counseling and Selection, National Manpower Council, on which he served when Tiedeman did, that the government pay career development money directly to citizens on a regular basis in the future, not to counselors. Such an economy would put counselors into competition for the governmentally-subsidized money of citizens who could then be accurately conceived as their customers and could thereby gradually but more definitely correct any of their misunderstood theories and practices. This economy would also permit the insertion of computer-assisted support systems for vocational decisions into the technology on which our improved service to users could be founded.

Preposterous? Possibly. However, we are on the brink of a revolution in our field. New solutions are bound to be needed. Let's not fight them; let's mediate them!

Occupational information is not an end in itself. It is only an end when occupational facts/data are mediated by persons and technology so that persons make the facts/data *their* ends or information in the ISVD sense.

Chapter 5

CHANGES AND INNOVATIONS IN CURRICULUM AND INSTRUCTION

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Chapter 5

CHANGES AND INNOVATIONS IN CURRICULUM AND INSTRUCTION

William J. Micheels and M. James Bensen

Introduction

Significant changes have occurred in the curricula of our vocational-technical schools during the past ten years. For the most part, these changes have been within the traditional pattern of curriculum development—new courses and new program titles, developed in the traditional ways, which reflect emerging technologies and other new kinds of jobs. This chapter will illustrate briefly what kinds of changes have been made, wherein a community survey, an advisory committee, and a job analysis technique have likely been used to develop the curriculum.

More recently, and particularly since the enactment of the Vocational Education Act of 1963, one can discern some beginning efforts at new techniques for determining course content, new patterns of learning experiences, new thoughts about the dimensions of vocational education, and new or improved instructional techniques aimed at increasing the effectiveness and efficiency of vocational-technical programs. In most instances only a start has been made. However, the major attention of this chapter is directed to these developments, without in any way intending to detract from those traditional programs which continue to turn out well-qualified graduates, albeit within a narrow spectrum of occupational needs.

Broad Changes in Curriculum Trends

It is interesting to note, historically, the very broad curriculum trends reflected in the changes in the name of a school. An example is

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a Madison, Wisconsin, school which was started in 1912 as the School of Industrial Education, reflecting a 1911 Wisconsin law calling for the establishment of "continuation schools." In 1917, following passage of the Smith-Hughes Act, the name was changed to the School of Vocational Education, and its curricula included home economics, commercial, academic, and industrial subjects.

In 1937 the name was changed to the Madison Vocational and Adult School in recognition of expanded needs for adult education. The next significant date was 1961, with additional offerings suggested by the new name: The Madison Vocational, Technical and Adult Schools. Associate degrees were introduced in automotive technology, civil technology, electronics technology, mechanical design technology, and business administration-accounting.

As a result of a 1965 state law this school became the focal point for a vocational district encompassing several counties, and in 1968 the name was changed to Madison Area Technical College, reflecting an intention to become a comprehensive community college. Some of the more specific curriculum changes in recent years are noted in the last part of this section.

Another way to identify curriculum changes over the past ten years is to compare the catalogues of vocational-technical schools at the beginning of the period with those at the end (realizing that ten years ago many vocational schools did not have a typical catalogue). Although time limitations precluded making a selection and study of catalogues from around the country, it was possible to obtain information about the Madison, Wisconsin, vocational school, as well as data from a school in an agricultural community (Willmar, Minnesota) which only in recent years has become an area vocational-technical school.

The vocational curriculum developments in Willmar are typical of what has been happening in many smaller communities throughout the country. In 1959 the high school had a few vocational offerings relating to agriculture and farm mechanics; in addition, a few students were enrolled in distributive education and the traditional courses in the commercial department. An Area Vocational-Technical School was established at Willmar in 1961. The following list of curriculum offerings illustrate both the changes and the growth between 1961 and 1969:

1961 Offerings

Electronics Technology
Auto Mechanics
Practical Nursing
Cosmetology
Business-Clerical and Secretarial
Adult Farm Management
  (not a total curriculum)
Enrollment: 87

1968-69 Offerings

Agricultural Production
Agricultural Supplies Technology
Sales and Marketing
Practical Nursing
Medical Office Assistant
Accounting
Clerical
Secretarial
Data Processing
Electronic Engineering Technology
Mobile Communication Technology
Drafting and Design Technology
Auto Mechanics
Auto Parts Merchandising
Machine Shop
Industrial Welding
Cosmetology
Food Preparation and
  Chef's Training

Enrollment: 700

It is difficult to make a meaningful comparison between the Madison Vocational and Adult School of 1959 and the Madison Area Technical College of 1969, other than to say that significant changes took place in the curricula. In 1959 there were business education courses in business administration, office machines, secretarial, and distributive education. The homemaking courses were primarily for adults. Trade preparatory and preapprentice courses were offered in fifteen or more of the traditional areas: drafting, machine shop, sheet metal, and the like. The Trade and Industry Division had technical courses for "Engineer Aids," "Industrial Mechanical Technology," and "Radio and Television Technician." All of the courses in the post-high school division were in business education, where the enrollment was around 300.

In 1969 there was a new, separate catalogue for the Madison Area Technical College, to accompany the catalogue for the Adult School, and more than 3,000 full-time students were enrolled in the following curricula leading to an Associate degree:

Accounting
Architectural Structural
  Technology
Automotive Technology
Chemical Technology
Civil Engineering Technology
Commercial Art
Court and Conference Reporting
Data Processing
Dental Hygiene
Electronics Technology
Fashion Merchandising
Fire Science Technology
General College
Legal Secretary
Marketing
Mechanical Design Technology
Medical Secretary
Metallurgical Technology
Office Mid-management
Petroleum Marketing
Police Science
Real Estate
Secretarial Science

These examples illustrate the trend in most established vocational-technical schools, which has been to move toward post-secondary education with more sophisticated offerings reflecting the needs of emerging technologies. Many schools have offered specialized training programs such as those under the Manpower Development and

Training Act (MDTA), but the great thrust has been toward technical-type offerings. At the same time, significant forces have been at work to counteract any trends whereby vocational-technical education becomes more selective. Thus we fiind various efforts aimed at a re-examination of vocational education offerings in the secondary school, toward the end that any student might have the benefit of occupational training prior to the time he leaves school. Secondary schools with a "college-bound" history are taking steps to provide occupational experiences for those students who previously had to obtain job orientation and training on their own. It is not yet clear how the established vocational-technical schools might aid in this process.

Recent Research Efforts in Curriculum Development

What part has research played in influencing changes in curriculum development? In the process of reviewing literature on curriculum development, the writers studied eight documents devoted exclusively to a summary and synthesis of research in vocational education.[1] Rather than to repeat what was already available in these various references, it was decided to use the available space to describe some recent developments in curriculum. A loose definition suggested by Bruner, who described curriculum as "an enterprise where the line between subject matter and method grows necessarily indistinct,"[2] was used in making the selection of topics.

As noted in the October 1968 *Review of Educational Research,*

> Since 1962 the interest in curriculum development research has increased, and there has been a large number of studies completed.

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[1] The following seven documents were published by the Center for Research and Leadership Development in Vocational and Technical Education, Ohio State University, Columbus, Ohio, in August 1966: Hester Chadderdon and Alyce M. Fanslow, *Review and Synthesis of Research in Home Economics Education,* pp. 10-31; Bruce W. Tuckman and Carl J. Schaefer, *Review and Synthesis of Research in Trade and Industrial Education,* pp. 8-12; Warren G. Meyer and William B. Logan, *Review and Synthesis of Research in Distributive Education,* pp. 8-43; Milton E. Larson, *Review and Synthesis of Research in Technical Education,* pp. 13-20; J. Robert Warmbrod and Lloyd J. Phipps, *Review and Synthesis of Research in Agricultural Education,* pp. 21-35; Frank W. Lanham and J. M. Trytten, *Review and Synthesis of Research in Business and Office Education,* pp. 18-26; and Jerry Streichler, *Review and Synthesis of Research in Industrial Arts Education,* pp. 8-17. See also Lloyd B. Phipps and Rupert N. Evans, "Curriculum Development," *Review of Educational Research,* 38 (October 1968), pp. 367-81.

[2] Jerome S. Bruner, "Some Theorems on Instruction Illustrated with Reference to Mathematics," in *Theories of Learning and Instruction,* ed. Ernest R. Hilgard (Chicago: University of Chicago Press, 1964), Chapter 13, pp. 306-35.

> Much of this recent research was more soundly designed than were earlier studies. Many innovative data collection and analysis techniques were utilized: factor analysis, analysis of variance and covariance, Q-sort, and many other procedures were incorporated into research designs in meaningful ways. Because of the complexity of the problems involved in curriculum development research, however, investigators must continue to be increasingly creative regarding designs and the adaptations of statistical tools. Less and less curriculum research can be justified that depends completely on simple opinion survey.[3]

Similar observations were made by other authors whose assignments covered specific areas of research in vocational and technical education:

> While much has been written about curriculum development, content, and analysis, few significantly different curriculum innovations were indicated by the available research.[4]
>
> From the standpoint of some researchers, studies and projects relating to curriculum are suspect . . . While the curriculum literature has been rich in statements of purposes, philosophy, and principles, it lacks theoretical formulations which foster researchable hypothesis.[5]
>
> The status of the curriculum in business education is one of uneasiness and confusion. The percentage of studies designed to investigate, improve, or evaluate the curriculum appearing in the *National Business Education Quarterly* testifies to the feeling that all is not well with the program with which we are working to make boys and girls economically literate and occupationally competent.[6]

With this healthy skepticism about many of the studies in curriculum development in mind, it is possible to summarize and generalize about some significant and interesting trends and developments which hold promise for future refinements. Several of them will be described more completely.

Redesigning the Total Curriculum

While most of the research and development efforts in curriculum have been small and fragmented—that is, directed to the improvement of a particular subject matter area—there have been a number of notable efforts to redesign an entire school curriculum. An important feature of these efforts is the integration of two educational areas which have been traditionally quite separate—the academic and the vocational.

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[3] Phipps and Evans, "Curriculum Development," p. 377.

[4] Larson, *Review and Synthesis of Research in Technical Education*, p. 13.

[5] Meyer and Logan, *Review and Synthesis of Research in Distributive Education*, p. 8.

[6] Lanham and Trytten, *Review and Synthesis of Research in Business and Office Education*, p. 18.

By way of introduction, some of the requirements and features of a totally new curriculum will be outlined briefly. Following sections will describe more restricted developmental efforts which may have been carried out separately but which may contribute to or become a part of a total curriculum. The section on Project ABLE will illustrate how these developments are being considered for inclusion in a total curriculum package.

In 1966 Morgan and Bushnell presented a paper on "Designing an Organic Curriculum" which was to serve as a beginning rationale for innovative curriculum changes in seventeen selected schools around the country.[7] Most of the following comments have been adopted from or quoted directly from this paper.

If a functionally integrated curriculum is to be achieved, the present system will need to be radically overhauled. The overhaul will not be easy, but the numerous experiences following Sputnik demonstrated that significant changes can take place in a relatively short period of time. What, then, are some of the features or requirements of such a curriculum?

> The most important feature of such a curriculum is that it is learner rather than process or subject matter centered. The integration and interaction of the components will be a result of careful systems design. There will be no discrete demarcation between academic and vocational skill training or between these and other parts of the system. The curriculum must be developed so that each activity relates logically to all other activities and leads to the efficient attainment of the behavioral objectives. . . .
>
> The curriculum should lead to options which will permit the maximum self-actualization of each individual. If a youngster leaves school before graduation, he should leave with useful tools. The student who graduates from the program should possess the necessary qualifications for maximum flexibility in his post-high school activities. He might enter a university or a community college and pursue an academic program. He might enter a community college or a technical school and receive post-high school occupational training. He should also have entry-level occupational skills which permit him to go to work. He should have the additional option of continuing his education in an adult education program, if he chooses. . . .
>
> The first step in building such a curriculum is to look at those behavioral requirements needed for entry into such a variety of post-high school activities. These behavioral requirements should be stated specifically and in measurable terms. Following the lead of the systems analyst, we should describe as precisely as possible the specifications of the desired end product. What are the ingredients of a high

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[7] Robert M. Morgan and David S. Bushnell, "Designing an Organic Curriculum" (Washington: Bureau of Research, U.S. Office of Education, 1966), 20 pp., mimeographed.

school program which will assure the attainment of these specifications? It will likely include academic as well as occupational training but may also include such components as personal development, real work experience, and post-high school placement functions. Even the avocational or school-sponsored recreation or social programs may be considered an integral component in this system. . . .

The characteristics of this system should include the following:

(1) It will permit maximum flexibility of post-high school activity options.

(2) A learner may opt out of the system but he should not opt into a cul de sac within the system.

(3) It will utilize appropriate self-paced and self-instructional technology and maximally accommodate individual differences in learning rates.

(4) It will allow each student to succeed in his learning experiences.

(5) It will be interesting, challenging and intrinsically motivating to each student.

(6) It should be capable of implementation in or adaptable to many different school systems.

(7) It will lead efficiently and effectively to the attainment of specific behavioral objectives.

(8) It should be, in the implementation stages, cost effective. . . .

While content and structure are difficult to state meaningfully without a great deal more specificity, the following is an attempt to state several objectives of such a curriculum. The new curriculum should:

(1) Emphasize the articulation between academic and vocational learning for the purpose of fusing the two programs. Employing vocational preparation as the principal vehicle, the inculcation of basic learning skills could be made more palatable to many students who otherwise have difficulty seeing the value of a general education.

(2) Expose the student to an understanding of the "real world" through a series of experiences which capitalize on the universal desire of youth to investigate for himself. Abstract, verbal principles would be acquired through non-verbal stimuli such as seeing, feeling, manipulating, and even smelling.

(3) Develop a core of generalizable skills related to a cluster of occupations rather than just those related to one specialized occupation.

(4) Orient students to the attitudes and habits which go with successful job performance.

(5) Provide a background for the prospective worker by helping him to understand how he fits within the economic and civic institutions of our country.

(6) Make students aware that learning is life-oriented and need not, indeed must not, stop with his exit from formal education.

(7) Help students cope with a changing labor market through developing their problem-solving ability and career strategies which can lead to an adequate level of income and responsibility.

(8) Create within the student a sense of self-reliance and awareness which leads him to seek out appropriate careers with realistic aspiration levels.

Morgan and Bushnell have developed a flow chart (Figure 5-1) to show how such a curriculum might come into being. In most cases the parts or features one might find in an integrated curriculum have been separate or discrete developments, although it is not difficult to discern how they might be combined.

New Approaches to Content Identification

A significant development of the past few years has been the variety of attempts to provide curricular offerings which are much broader in nature than the traditional, highly specialized, single-occupation curriculum. The purposes of these efforts were (1) to provide the graduate with greater flexibility in his efforts to obtain a job, and (2) to identify basic vocational skills and capabilities which can serve as the foundation for more specific training in a variety of occupations.

One idea which has received considerable attention is the "job-cluster" concept, the purpose of which is to develop curricula which will aid students in developing specific job-entry skills within a family of occupations. Three of the various projects based on this concept will be described in order to illustrate different approaches.

The cluster concept program developed at the University of Maryland is based upon four needs: First, "There is a need to provide students with a greater degree of mobility on a geographical basis. Second, there is a need for increased mobility within an industry or occupation. Third, students must be trained so they can adapt to technological change. And finally, students must be given a greater flexibility in their occupational choice patterns."[8]

Although the Maryland study was limited to a determination of curriculum content for occupational clusters in three areas of industry—metal forming and fabrication, construction, and electro-mechanical installation and repair—the directors feel that the techniques they have developed are applicable to other occupational clusters as well.

The Kansas City plan provides for an "Introduction to Vocations" class in the junior high school, followed by job cluster courses in the ninth and tenth grades, after which qualified students transfer to a central vocational-technical facility for specialization. The recom-

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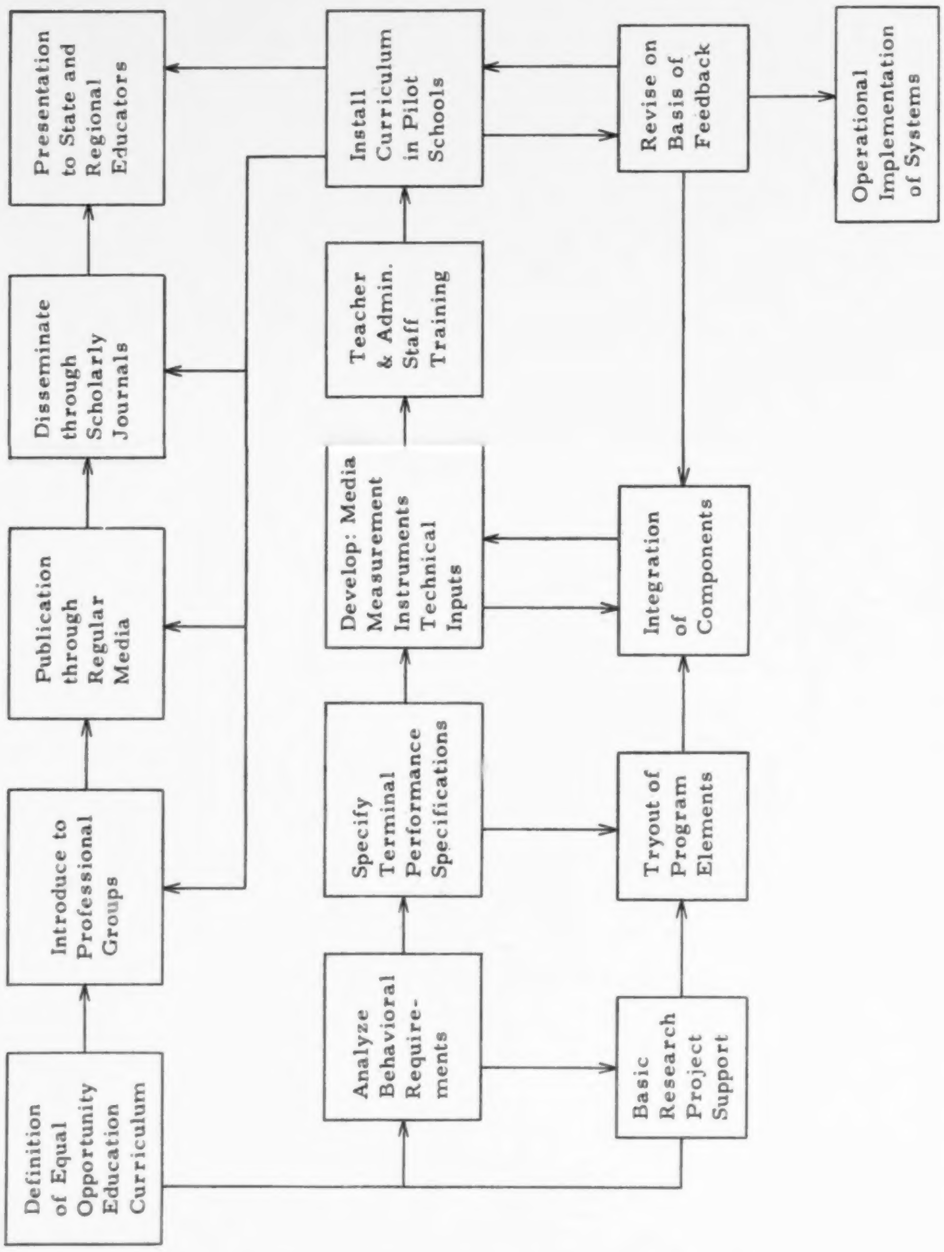
[8] Nevin R. Frantz, Jr., "The Cluster Concept as a Program in Vocational Education at the Secondary School Level," in *Research in Vocational and Technical Education*, eds. Cathleen Quirk and Carol Sheehan (Madison: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967), p. 85.

FIGURE 5-1.
Functional Flow of Curriculum Definition, Design, Production, and Validation.


Definition of Equal Opportunity Education Curriculum
Introduce to Professional Groups
Publication through Regular Media
Disseminate through Scholarly Journals
Presentation to State and Regional Educators
Analyze Behavioral Require-ments
Specify Terminal Performance Specifications
Develop: Media Measurement Instruments Technical Inputs
Teacher & Admin. Staff Training
Install Curriculum in Pilot Schools
Basic Research Project Support
Tryout of Program Elements
Integration of Components
Revise on Basis of Feedback
Operational Implementation of Systems

Source: **Robert M. Morgan and David S. Bushnell, "Designing an Organic Curriculum" (Washington: Bureau of Research, U.S. Office of Education, 1966), unpublished mimeographed report.**

mended clusters include the following areas: electrical, transportation, manufacturing and fabricating, food service, visual communi-

TABLE 5-1. Three Approaches to the Cluster Concept in Developing Vocational Programs.

Maryland Trade and Industrial Clusters	**Kansas City** Broad Vocational Education Clusters	**New York State** Home Economics Clusters (Clusters within service areas)
Construction Carpenter Electrician Mason Painter Plumber	**Transportation** Aircraft Mechanics Auto Body Repair Auto Mechanics Diesel Mechanics Motorcycle, Marine & Other Small Engines	**FOOD SERVICES:** ***Cluster 1* — Occupations Performed in the Back of the House in the Food Service Establishment** Kitchen Helper Food Assembler Tray-Line Worker Pantry Worker Special Kitchen Helper Formula-Room Worker Caterer's Helper
Electro-Mechanical Instal. & Repair Air Cond. & Ref. Serviceman Business Machines Serviceman Home Appliance Serviceman Radio, TV Serviceman	**Manufacturing and Fabricating Area** Hydraulic & Fluid Power Machine Tool Operators Mechanical Technology Metallography & Testing Plastic Technology Welding	***Cluster 2* — Occupations Performed in the Front of the House in Food Service Establishments** Dining Room Helper Counter Helper Fountain Worker Snack Bar Worker Waiter/Waitress Hostess Head Waiter
Metal Forming and Fabrication Assembler Machine Operator Sheetmetal Worker Welder	**Visual Communications Area** Commercial Art & Advertising Drafting (technical) Graphic Arts Technical Writing & Illustrations	***Cluster 3* — Occupations Performed in the Preparation & Service of Food in the Home** Family Meal Aide Family Dinner Service Specialist
	Other cluster areas which are offered but space does not permit a breakdown are: **Food Services** **Business & Distributive Service Area** **Health Occupations Areas** **Miscellaneous Occupational Areas**	Multiple Clusters, with specified occupations, are also developed in: **CLOTHING SERVICES** **HEALTH SERVICES**

cations, business and distributive, service, health, and miscellaneous.[9]

New York has developed a Home Economics Occupational program in which training groups are organized in three areas: food services, clothing service, and health services. Table 5-1 illustrates the different approaches being followed in these three programs.

The Detroit Galaxy Plan is a similar broad-based approach in which each student studies clusters of occupations, starting in junior high school, and proceeds to selective studies in depth as he continues through the senior high school. Project ABLE (described in a later section) is also based on realistic education for "families of skills."

Something similar has been happening in the area of agricultural and distributive subjects. Various studies in these areas reflect the recent emphasis on extending vocational and technical education to areas not previously, or inadequately, served. Since 1962, there have been numerous studies which have assisted in identifying "non-farm families or clusters of jobs that require considerable knowledge and skill in agricultural subjects: agricultural supply, agricultural mechanization, agricultural products, agricultural resources, ornamental horticulture, and forestry."[10]

An example of one such program is the Agricultural Supplies Technology curriculum at the Willmar Area Vocational-Technical School. This program prepares students "for occupations in agricultural businesses that handle grain and provide livestock feeds, seed, fertilizer, agricultural chemicals, small equipment, and services to farmers . . . . Agriculture today is more than farming. Agri-business is a dynamic and changing industry in a scientific age."[11] The courses required in this curriculum are shown in Table 5-2.

Another effort that is worthy of note is the complementary attempt by Schill and Arnold to identify curricula content for six technologies in which a common core forms the base for each of the six. In the process of identifying the various competencies, "technically competent persons in industry who supervise the job performance of technicians were consulted in an effort to relate technician job functions to two-year post-high school technical curricula."[12] A card-sort technique was employed; each card contained a course description.

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[9] Don R. Sheets and Hollis W. Dahler, "The Cluster Concept—Kansas City Style," *American Vocational Journal*, 42 (October 1967), p. 24.

[10] Phipps and Evans, "Curriculum Development," p. 371.

[11] Willmar (Minn.) Area Vocational-Technical School, *1968-70 Bulletin*, pp. 16-17.

[12] William John Schill and Joseph Paul Arnold, *Curricula Content for Six Technologies* (Urbana: Bureau of Educational Research and Department of Vocational and Technical Education, University of Illinois, 1965), pp. 81-95.

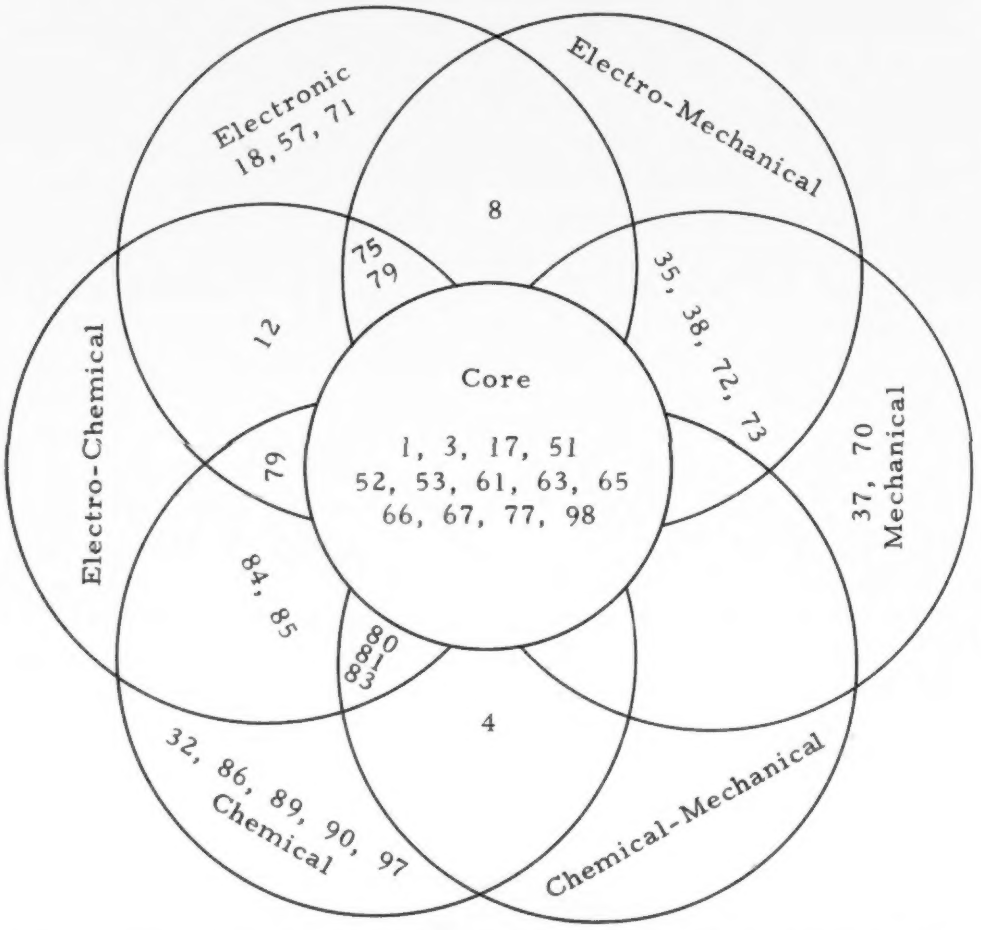
TABLE 5-2. Agriculture Supplies Technology
Willmar Area Vocational-Technical School
22½ Month Program 2700 Hours

First Year	Clock Hours	Credits	Second Year	Clock Hours	Credits
Plant Science I	60	3	Communications I	60	3
Agriculture Chemicals	60	3	Elevator Management	60	3
Farm Buildings	60	3	Advertising & Sales Promotion	60	3
Business Accounting I	120	6	Applied Animal Nutrition I: Feeds	60	3
Office Machines	60	3	Ag Marketing	60	3
Animal Science I: Beef, Sheep, Dairy	60	3	Agricultural Prices and Policies	60	3
Soil Science I: Fertility	60	3	Communication II	60	3
Farm Shop	60	3	Data Processing	60	3
Business Accounting II	120	6	C[illegible] Management	60	3
Salesmanship	60	3	Applied Animal Nutrition II: Feeding	60	3
Animal Science II: Swine, Poultry	60	3	Agricultural Supplies Seminar	60	3
Soil Science II: Fertilizers	60	3	Farm Power	60	3
Ag Mathematics	60	3	Human Relations	60	3
Spring & Summer Supervised Occupational Experience	720	36	Display & Showcard Lettering	60	3
	1620	81	Audio-Visual	60	3
			Plant Science II	60	3
			Animal Health	60	3
			Grain Grading	60	3
				1080	54

The six technologies studies were electronic, chemical, mechanical, electro-mechanical, electro-chemical, and chemical-mechanical. Figure 5-2 shows the general and specific knowledges related to the six technologies (keeping in mind that each number might be thought of as a specific course).

As noted by the authors, "The core program and the specific programs for the six technologies embrace a total of 37 card-sort items which could be conceived as course descriptions. To be able to offer programs in six technologies with a total of 37 courses, many of which would be included in the basic academic offerings of a junior college, takes a considerable burden off the typical post-high school educational institution in that each technology does not require a complete,

FIGURE 5-2.
Schematic Representation of General and Specific Knowledges Related to Six Technologies.


Electronic
18, 57, 71
Electro-Mechanical
8
75
79
12
35, 38, 72, 73
Core
1, 3, 17, 51
52, 53, 61, 63, 65
66, 67, 77, 98
Electro-Chemical
79
37, 70
Mechanical
84, 85
80
81
83
4
32, 86, 89, 90, 97
Chemical
Chemical-Mechanical

Source: **William John Schill and Joseph Paul Arnold, *Curricula Content for Six Technologies* (Urbana: Bureau of Educational Research and Department of Vocational and Technical Education, University of Illinois, 1965).**

unique curriculum."[13]

The largest number of core items are in an area typically known as general engineering or engineering graphics. Others are in the general area of mathematics or are related to testing and measuring. One item stood alone and is worthy of quotation:

> 1. Technical and scientific oral and written communication, including business forms, reports, emphasizing the different types of business letters. Techniques of collecting and presenting scientific data. Informal reports and formal reports; special types of technical papers.[14]

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[13] Ibid., p. 91.

[14] Ibid., p. 84.

New Attention to Objectives

Closely related to the new approaches to content identification has been the heightened awareness of the need for increased specificity in defining learning objectives. A good case might be made for the proposition that this is the most important development in the curriculum area during the past few years.

The idea is not new, but it is only beginning to permeate the teaching profession. One can go back to the early work of Tyler (1934) wherein he wrote, "Each objective must be defined in terms which clarify the kind of behavior which the course should help to develop among the students; that is to say, a statement is needed which explains the meaning of the objective by describing the reactions we expect of persons who have reached the objective."[15]

More recently some contributions to this approach have come from workers in military technical training where it was found essential to specify the performances expected of a student upon completion of training. A useful recent source on the procedures for the development of training objectives by "task description" is Smith's *The Development of Training Objectives.*[16]

One writer uses these words to summarize the objectives of the Quincy, Massachusetts, experimental curriculum (described in a later section): "However suitable 'vocational satisfaction,' 'responsible citizenship,' and 'self-fulfillment' may be as broad goals, they are not adequate as working objectives for curriculum development. The design of learning units, learning sequences, and proficiency measures requires that objectives be defined in terms of the performance capabilities to be demonstrated by successful students."[17]

Programmed instruction is another development (see later section) in which emphasis has had to be placed on the proper definition of objectives. A popular reference growing out of this need has been Mager's booklet, wherein he defines an objective as "an intent communicated by a statement describing a proposed change in a learner —a statement of what the learner is to be like when he has successfully completed a learning experience."[18] Specificity is the key in a well written objective, with attention given to three elements:

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[15] R. W. Tyler, *Constructing Achievement Tests* (Columbus: Ohio State University, 1934).

[16] R. G. Smith, Jr., *The Development of Training Objectives* (Alexandria, Va.: Human Resources Research Office, George Washington University, 1964), HumRRO Research Bulletin 11.

[17] Edward J. Morrison, "General Vocational Skills and the Secondary Curriculum," in *Research in Vocational and Technical Education,* p. 75.

[18] Robert F. Mager, *Preparing Instructional Objectives* (Palo Alto, Calif.: Fearon Publishers, 1962), p. 3.

(1) Instructional intent (What do you expect him to be able to do?

(2) Performance conditions (What aids are available or restrictions imposed upon him when he performs?).

(3) Level of performance (How well do you expect him to perform? Quantitative or qualitative specifications.).

More and more curriculum workers in vocational education have been using the taxonomies of educational objectives which have been developed since 1956. These might be considered as tools for checking on the complexity or nature of an objective. In the *cognitive* domain, the taxonomy includes six levels of understanding ranging from a simple knowledge of facts to comprehension, application analysis, synthesis, and evaluation.[19] Thus a teacher or curriculum worker can check his objectives against this hierarchy of cognitive behaviors. If he finds that most of his objectives relate to a lower level of understanding, he may wish to make some changes in the learning experience which he is providing.

A similar classification of educational goals in the *affective* domain has been provided in more recent years. This tool has been helpful to workers who are concerned with the more elusive behaviors relating to attitudes or feelings.[20] The latest of such tools is the classification of educational objectives in the *psychomotor* domain which is a tentative system containing five levels of skill development.[21]

Individualized Learning Packages

Instructional management strategy is one of various terms borrowed from industry which have begun to appear in curriculum literature. One outcome of the "strategy" is to provide individualized learning packages. The terminology is new; the concept is old. More than thirty years ago R. W. Selvidge published a book entitled *Individual Instruction Sheets*, and although it did not contain the sophisticated expressions which we hear today, the idea was the same—to individualize the student's instruction in keeping with his needs and abilities.

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[19] Benjamin S. Bloom et al., *Taxonomy of Educational Objectives, the Classification of Educational Goals, Handbook I: Cognitive Domain* (New York: David McKay Co., Inc. 1956).

[20] David R. Krathwahl, Benjamin S. Bloom, and Bertram B. Masia, *Taxonomy of Educational Objectives, the Classification of Educational Goals, Handbook II: Affective Domain* (New York: David McKay Co., Inc. 1964).

[21] Elizabeth J. Simpson, *The Classification of Educational Objectives, Psychomotor Domain* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, May 1966), Vocational-Technical Education Grant, Contract No. OE-5-85-104.

The following assumptions which underlie the development and utilization of individualized learning packages are adapted from a paper by Kapfer:[22]

First, the pupil's responsibility is to learn and the teacher's responsibility is to make available to the pupil that which is to be learned. The teacher does not cover a course, but rather uncovers it.

Second, the subject matter of a course must be appropriate to the learner with reference to (1) pace of instruction, (2) level of difficulty, (3) relevance of the material as perceived by the student, (4) pupil's level of interest, and (5) individual learning style of the pupil.

Third, the size of a group should be appropriate to the purposes of the group. (This is an incomplete description of a recent and new dimension—the interaction of large group instruction, small group instruction, laboratory instruction, and independent study. One of our colleagues says that this idea isn't entirely new either, as he experienced something similar in "country school.")

Fourth, before truly individualized instruction can become a reality, learning packages are needed which will provide for self-paced rather than group-paced instruction.

The learning package contains instructional objectives which tell the pupil what he will have to be able to do when he is evaluated, the important conditions under which he will have to perform, and the lower limit or quality of performance expected of him. Multidimensional learning materials of varying difficulty are cited and diversified learning activities are provided.

Provision is made for pre-evaluation to assess the extent to which the pupil may already have achieved the objectives. Self-evaluation activities occur along the way and are used to indicate a readiness for the post-evaluation which is in terms of the original objectives set forth.

An example of a learning package comes from the program at the Nova school in Fort Lauderdale, Florida,[23] where the first year course in Mechanical Technology contains individual learning packages for twenty-nine units (Table 5-3). Figure 5-3 shows the steps the learner goes through in studying Unit 8, "Hardness."

Another example of an individualized instructional approach is contained in the recent publication, *Polysensory Learning Through*

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[22] Philip G. Kapfer, "An Instructional Management Strategy for Individualized Learning," *Phi Delta Kappan,* 49 (January 1968), pp. 260-63.

[23] Alfred V. Rapp, "Hardness (A Package in Mechnical Technology, First Level," unpublished curriculum of Nova High School, Fort Lauderdale, Fla.

TABLE 5-3. Mechanical Technology

First Year

1. Overview
2. Materials
3. Machines (simple)
4. Kinematics (intro)
5. Kinematic analysis
6. Machine speeds, feed & depth of cut
*7. Machines design & construction
8. Hardness
9. Preparation for microstudy
10. Microanalysis & interpretation
11. Stress and strain
12. Tension, compression & shear
13. Introduction to fastening
*14. Mechanical fastening
*15. Adhesive fastening
*16. Cohesive fastening
17. Parting (introduction)
*18. Mechanical parting
*19. Chemical parting
*20. Other parting techniques
    thermo
    electro-thermo
    electro
    abrasives
21. Forming
*22. Molding
*23. Forging
*24. Pressing
*25. Bending
*26. Blowing
*27. Extruding
*28. Roll
*29. Drawing

Source: Alfred V. Rapp, "Hardness," unpublished curriculum of Nova Higher School, Fort Lauderdale, Fla.
*These packages may be deleted from an individual student's sequence, dependent on his background, ability, and needs.

Multi-media Instruction in Trade and Technical Education.[24] In this booklet which describes a cooperative program at Mt. San Jacinto College, California, explanation is given of a "teaching system designed to stimulate polysensory learning through a variety of devices and materials that generally are referred to as multi-media instructional materials." Also described is the use of such materials in Trade and Technical Teacher Education and in Auto Mechanics and Auto Body and Fender Repair classes. Figure 5-4 shows the interrelationship between the multi-media elements.

The Multidiscipline Approach and Team Teaching

Various multidisciplinary approaches to occupational training are emerging. One example is the English-agriculture-distributive-business-trade and industrial contributions required for the numerous new farm-related occupations. Another is the staff for Project ABLE which includes twenty-eight teachers from most of the disciplines offered in the Quincy, Massachusetts, school. Two other projects which have received considerable attention are the Richmond Pretech Program and the Project FEAST in the San Francisco Bay area.

The Richmond Plan grew out of a desire to provide meaningful

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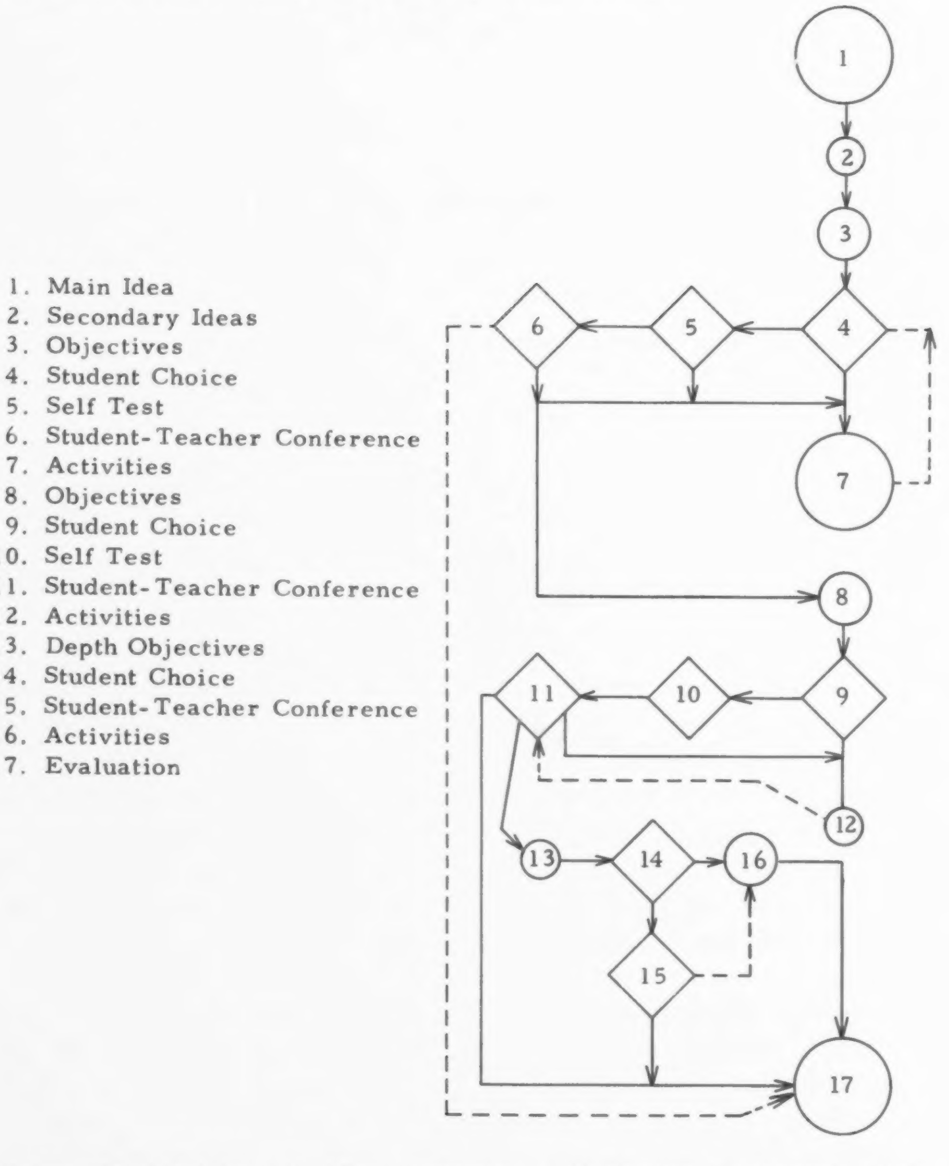
[24] David Allen, Bruce J. Hahn, Milo P. Johnson, and Richard S. Nelson, *Polysensory Learning Through Multi-media Instruction in Trade and Technical Education* (Los Angeles: Division of Vocational Education, University of California, in cooperation with Bureau of Industrial Education, California State Department of Education, 1968), iii + 67 pp.

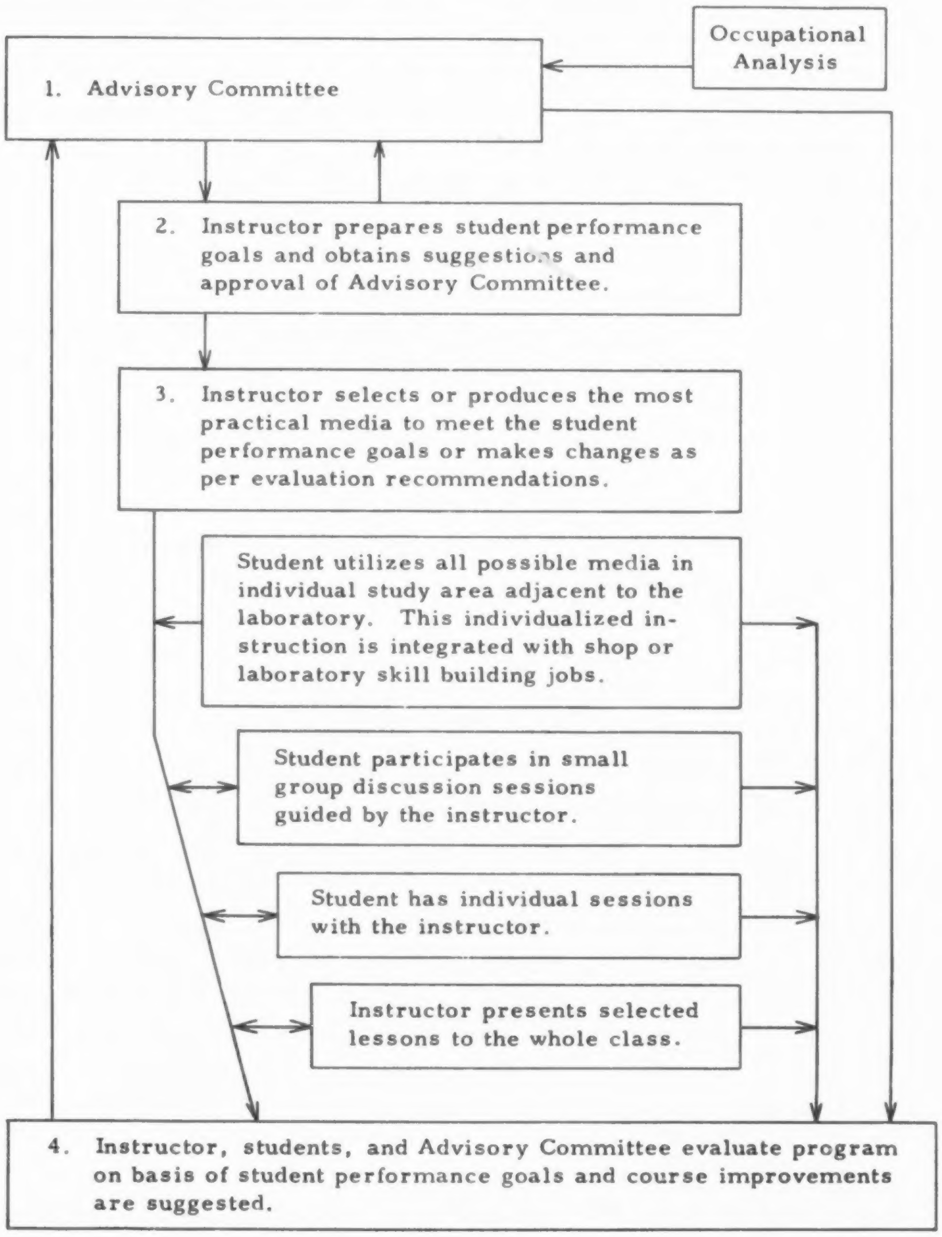
FIGURE 5-3. Unit 8—Hardness Learning Activity Package.


1. Main Idea
2. Secondary Ideas
3. Objectives
4. Student Choice
5. Self Test
6. Student-Teacher Conference
7. Activities
8. Objectives
9. Student Choice
10. Self Test
11. Student-Teacher Conference
12. Activities
13. Depth Objectives
14. Student Choice
15. Student-Teacher Conference
16. Activities
17. Evaluation
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

Source: **Prepared by A.V. Rapp, Instructor of Mechanical Technology, Nova Higher School, Fort Lauderdale, Florida.**

school experiences for average-ability students who were low achievers and were not succeeding in high school, the premise being that the artificial fragmentation of subject matter characteristic of the usual school program could be eliminated. The plan uses the student's practical and occupational interests as a means of developing his general and academic skills. Lessons are not separated into such courses as physics, mathematics, English, and shop, but rather are combined to make the overall program reflect the real world which

FIGURE 5-4. Interrelationship Between Multi-media Elements.


Occupational Analysis
1. Advisory Committee
2. Instructor prepares student performance goals and obtains suggestions and approval of Advisory Committee.
3. Instructor selects or produces the most practical media to meet the student performance goals or makes changes as per evaluation recommendations.
Student utilizes all possible media in individual study area adjacent to the laboratory. This individualized instruction is integrated with shop or laboratory skill building jobs.
Student participates in small group discussion sessions guided by the instructor.
Student has individual sessions with the instructor.
Instructor presents selected lessons to the whole class.
4. Instructor, students, and Advisory Committee evaluate program on basis of student performance goals and course improvements are suggested.

Source: **David Allen, Bruce J. Hahn, Milo P. Johnson, and Richard S. Nelson, *Polysensory Learning Through Multi-media Instruction in Trade and Technical Education* (Los Angeles: Division of Vocational Education, University of California, 1968).**

motivates and holds the interest of occupationally oriented students.

For a part of the day the students are engaged in a block program which teams a science teacher, a mathematics teacher, an English

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teacher, and an industrial arts teacher. Under the team's direction, the students apply the basic principles of the three academic disciplines in the industrial arts laboratory. As in any new plan, one of the problems is to find strong leadership and committed teachers. As of 1969 the plan had spread to nineteen schools, and preliminary evaluative reports indicate that a significant number of the students involved have succeeded in their high school work and are ready for employment or for entrance into a collegiate institution.[25]

A direct "spin-off" of the Richmond Plan is Project FEAST (Foods Education and Service Technology), also in the San Francisco Bay area. The purpose of the program is to afford interested and qualified students an opportunity first to explore and then to prepare for a career in the commercial foods industries.

The project was planned "so that instruction in areas other than food service and preparation reinforces the occupational training. The FEAST faculty includes the home economics teacher who generally serves as team leader and food preparation and service instructor, an English teacher, a business teacher, a counselor, and the cafeteria manager. These teachers function as an interdisciplinary team; they plan their instruction together. Materials in English and business are closely related to the content covered in the foods laboratory. The cafeteria manager and a counselor are members of the team to assure meaningful on-campus work experience and to provide informed guidance."[26]

Early Career Exposure

One of the significant deficiencies in the total approach to vocational education has been "a particular backwardness, with notable exceptions, in undertaking an orientation to the world of work in the junior high school or earlier to better prepare students for future vocational education."[27] The implications of this statement, from the 1968 report of the Advisory Council on Vocational Education, are undoubtedly reflected in one section of the Vocational Education Amendments of 1968 wherein provision is made for early exposure to the world of work by "establishing, operating, and evaluating exemplary and innovative vocational education programs or projects designed to . . . familiarize elementary and secondary students with the broad range of occupations for which special skills are required and the requisites for careers in such occupations."

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[25] *New Directions in Vocational Education: Case Studies in Change* (Washington: U.S. Government Printing Office, 1967), pp. 1-14.

[26] Louis F. Batmale, "Project FEAST (Food Education and Service Technology)," in *Research in Vocational and Technical Education*, pp. 265-75.

[27] Advisory Council on Vocational Education, *Vocational Education: The Bridge Between Man and His Work* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968), p. 59.

We can expect that in the immediate years ahead this federal encouragement will provide a great impetus for early career exposure of a type that only recently was considered by many to be outside the realm of vocational education. The title of the report, *Vocational Education: The Bridge Between Man and His Work*, implies a series of learning experiences which are an integrated part of the total educational process rather than a "tacked-on" appendage for persons who are not in the mainstream of education.

Several of the curriculum developments mentioned in this chapter extend down into the junior high school, and the Kansas City Plan, the Detroit Galaxy Plan, and Project ABLE are examples of recent efforts to make an earlier start in helping young people plan and prepare for a career.

Another project, which has received support from vocational funds, is the Technology for Children Project in New Jersey where 22 elementary school teachers and a group of children of various ages were brought together in an industrial arts laboratory. The aim was to maximize opportunities for boys and girls to interact with tools and materials. Four themes for the program grew out of the analysis of man's interactions with his physical world: (1) design, (2) macroscopic properties of materials, (3) the use of tools to extend the human powers, and (4) instrumentation.

There was no fixed content; the design problems undertaken by each child or group determined the content. There were no stated objectives and no specific skills or understandings to be developed. The child's own sensory experiences, and his association with others in design efforts, provided the content and motivation to learn. Students designed and constructed a playhouse, a prairie schooner, and a general store. They made paper and crystal radio sets, printed their own stories, took clocks and cameras apart, and demonstrated the use of a two-pulley system by lifting each other. Visits were made to industry, and workmen were brought into the laboratory to answer questions about their jobs.[28]

The federal encouragement of "innovative" programs of types described cannot help but bring to mind the recommendations of Dewey and Bonser in the early 1900s for the use of tools and ma-

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[28] Elizabeth Hunt, "Technology for Elementary School Children," a two-year pilot program sponsored by the New Jersey State Department of Education and funded by the Ford Foundation, 1966.

TABLE 5-4. Learning Experiences Relating to Careers and the World of Work

"E"mphasis	School Level	Approach
"E"xposure	Kindergarten through grade 6 and/or up into middle school	Integrated into the regular curriculum or offering of special units
"E"xplore	Junior high and lower levels of senior high	Explore across families of occupations. Broad concepts and "thinking skills" in industrial arts, home economics, and business type courses, etc. Orientation to occupational opportunities & needed qualifications.
"E"xperience	a) Upper high school	Cluster concept — study and become involved in broad areas of an occupational field. Acquisition of skill types for *possible* job entry.
	b) Post high school	Expanded study of the broad occupational cluster with specialization in an area of the cluster to insure job entry, plus enhance advancement potential.
	c) In-service education & adult re-education	On-the-job training and evening school. Specialized in-depth instruction to provide advancement and diversification.

terials in the learning activities of the elementary school.[29] In an effort to portray graphically this trend toward early career exposure and the total program of vocational education, one of the writers prepared an illustration for his classes, using three "E's" as a point of departure (see Table 5-4).

Several experimental programs at the junior-senior high school level, aimed at providing a link between general and vocational education, deserve passing mention.

The American Industry Project at Stout State University is an attempt at a complete restructuring of learning experiences intended (1) to develop an understanding of those concepts which directly apply to industry, and (2) to develop the ability to solve problems related to industry. The project is predicated upon the application of conceptual analyses and methodologies, and the basic structure is identified as consisting of thirteen major concepts: communication, transportation, finance, property, research, procurement, relationships, marketing, management, production, materials, processes, and energy. The aim is to help the student develop his own conceptual model of industry and make use of it as a tool of inquiry in solving problems relating to industry. The secondary school program has been field-tested over a five-year period in Wisconsin, Minnesota, and Ohio. A complementary teacher education program has also been developed.[30]

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[29] Fredrick G. Bonser and Lois C. Mossman, *Industrial Arts for Elementary Schools* (New York: Macmillan Co., 1932).

A similar experiment is the Industrial Arts Curriculum Project at Ohio State University. This project defines industry as being concerned with changing the form of materials to provide for man's material wants, and it concentrates on the identification of technological concepts in the construction and manufacturing industries and the organization of the concepts into a structured body of knowledge. Two courses, construction and manufacturing, have been designed and are in the process of being field tested. Both projects have developed packages of correlated teachers' guides, student textbooks, and visual aids.[31]

The Partnership Vocational Education Project at Central Michigan University is a comprehensive, occupationally-oriented program which draws together the university, industry, community colleges, and high schools in a cooperative effort. Grades seven through nine are spent in exploring, planning, and working with materials and processes. At the ninth or tenth grade a broad study of American industry is undertaken. Students are later grouped by ability in one of three prevocational tracks at the eleventh and twelfth grades. Students can then go to community colleges, to the university, or into a five-year program for teachers which includes internship experience in both industry and teaching.[32]

Work Experience as a Part of Vocational-Technical Education

Work-experience programs of various types have been a part of occupational training for many years. The 1968 report of the National Advisory Council indicates that at least 2,500 schools had cooperative education programs in which the student obtains "a meaningful work-experience combined with formal education in order to develop simultaneously knowledge, skills, and appropriate attitudes." Distributive education had the largest number of programs and the largest number of students enrolled. The lowest enrollments were in home economics.

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[30] Wesley L. Face and Eugene R. F. Flug, *The Establishment of American Industry as a Transitional Subject Between General and Vocational Education* (Menomonie, Wis.: Stout State University, 1965), Developmental and Pilot Program Proposal, Contract No. OE-5-85-060.

[31] Edward R. Towers et al., *An Industrial Arts Curriculum Project for the Junior High School* (Columbus: Ohio State University, January 1967), Contract No. OE6-5-85-066, Report No. BR-5-0059.

[32] Ernest L. Minelli (Project Director), *Partnership Vocational Education Project* (Mount Pleasant: Central Michigan University, no date), funded by the Ford Foundation.

Although numerous writers, including members of the Congress, have emphasized the importance of on-the-job work experience, the writers were unable to locate any innovations in this area. No comparative growth data were located, but it seems safe to state that the practice of field experience as a part of the curriculum is growing, at both the high school and post-high school levels. The Vocational Education Amendments of 1968 provide significant amounts of money for expansion of cooperative part-time programs.

One interesting program in which cooperative education plays a significant part is the Western States Small Schools Project in which education for career selection and orientation to the world of work is being developed in fourteen small schools (200 students or less) where it has been impossible to provide conventional programs of vocational education.[33] Emphasis is being given to individualizing instruction:

> [S]everal WSSP schools demonstrated that individually tailored courses of study featuring heavy dependence on student initiative, independent study can be successful in small schools. The diverse vocational classes rely heavily on this concept. A course of study including concept development, skill training, and practical work experience is developed for each member of the class consistent with his career choice. Instructional materials that will support this course of study are gathered and made available to the student. In those fields where programmed texts and other self-tutoring devices are available these types of materials are used extensively.
>
> The planned use of business enterprises for observation and real experience is incorporated in the student learning program. . . . The role of the teacher is primarily that of planning such courses, gathering the supporting materials, being available as a consultant, or being able to make available other human resources. . . .
>
> As indicated, the effective use of community and area resources, both human and physical, for work experience, exploration, observation and analysis is an integral part of this program.

Programmed Instruction

Closely related to individualized learning packages are the numer-

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[33] Rowan C. Stutz, *Career Selection Education for Students Attending Small Isolated Schools* (Salt Lake City, Utah: Western States Small Schools Project, 1967), p. iv.

ous developments in programmed instruction. Although the idea can be traced to the introduction of the Pressey device in the 1920s, (A Simple Apparatus Which Gives Tests and Scores—and Teaches), very little attention was given to the possibilities until the 1950s when the work of Skinner popularized the concept of "teaching machines."[34] Now it seems safe to say that during the 1960s every segment of vocational education has had someone experimenting with programmed instruction.

Some examples are programmed instruction courses in successful retail salesmanship, money handling, and use of the cash register for distributive education students. In home economics one can find programs for teaching basic nutrition as well as a series of units on family relationships for deaf students. Milwaukee Technical College has been developing a series of experimental programmed materials in technical mathematics. Illustrative of the many programmed materials used in industry are the digital computer series prepared by the Field Service Department of A.C. Electronics and the Kearney and Trecker Corporation manuals to help clients learn about the corporation's machines.

To this point most programming attempts have been related to the linear approach or the branching program. Linear programs (Skinner) present information to the student in small sequential bits, called frames, so constructed that special prompts and cues almost always lead the student to make the correct response. In the branching or intrinsic program, responses are selected from a multiple-choice structure and test response is used to direct the student to the next material to be read or step to be taken.

Individual programming styles and forms are producing a variety of novel techniques. In the words of Lumsdaine, "the fact that these [programs] initially tended to cluster around two or three main types should not blind us to the possibilities of almost infinite variation."[35] Whatever the approach, good programmed instruction will include the following features:

(1) Statements of objectives in terms of expected behavior or performance outcomes.

(2) Logical organization of instructional material to achieve the stated objectives.

(3) Presentation of information to be learned in short, easily comprehended steps built one upon another.

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[34] B. F. Skinner, "Teaching Machines," *Science*, 128 (October 24, 1958), pp. 957-77.

[35] A. A. Lumsdaine, "Educational Technology, Programmed Learning, and Instructional Science," in *Theories of Learning and Instruction*, Part I.

(4) Active participation of the learner through reading the material with covert or overt responses to the questions.
(5) Immediate feedback of correct answers.
(6) Provision for students to proceed at individual rates of learning.

The Systems Analysis Approach

An interesting "spin-off" from industry and the military is the instructional system approach to training and evaluation. A training official from industry recently told one of the writers, "This is a 'hard-nosed' approach because we have to guarantee that the graduate will be able to perform on the job. If he cannot, we have to keep spending money until we find the system that will guarantee results." The following summary of one such approach has been adapted from an unpublished paper prepared by Derwin A. Fox of the A.C. Electronics Division, General Motors Corporation.

The instructional system approach is a methodical and closed-loop technique for performing effective and valid student-centered training. The knowledge and skills which the student must possess upon completion of his training are the "keystone" in defining the training needs. The objective of an instructional system is to provide relevant and essential training and to exclude insignificant details or trivialities. To ensure the usefulness and application of the training, very specific goals (learning objectives) are established and used as the basis for instruction and evaluation.

An instructional system can be defined as an integrated set of methods, media, facilities, and personnel efficiently performing the training functions required to accomplish one or more specific learning objectives. The characteristics of an instructional system are as follows:

a. Specific knowledge and skill requirements are defined and documented.
b. Student characteristics and entry knowledges and skills are defined and documented.
c. Specific learning objectives are prepared and used for course control and evaluation.
d. Media, methods, facilities, and instructor personnel are selected, based on the learning objectives and system constraints.
e. An evaluation of the training is performed to determine the effectiveness of the instructional strategy and the relevancy of the instructional objectives.

The five phases involved in developing an instructional system are performed in the following sequence:

1. Determine training requirements.
2. Design curriculum.
3. Development of methods, media, facilities, and personnel.
4. Implementation of training.

5. System evaluation.

"Why can't systems thinking, as applied to the improvement of military training programs, be used to upgrade secondary school vocational studies?" Three authors who have had first-hand experience in developing technical training programs for the U.S. Army used this question in introducing their paper, "Systems Thinking for Vocational Education." As a result of such an approach they were able to "cut on-the-job training requirements in half. Graduates needed less on-the-job supervision; in-school training time was cut five percent for large dollar savings. Half as many students failed. Inept students were spotted early and instructors were used to better advantage."[36] A model of their fifteen-step curriculum system is shown in Figure 5-5.

Computer-Assisted Instruction

Computer-assisted instruction (CAI) has become a familiar term to describe the many attempts to individualize instruction with the aid of a computer. Although the term has acquired glamorous connotations and one must be wary of the "gimmicks," CAI's potential is enormous if we have the creativity to use the tools properly.

The technology is already available, and improvements are constantly being made. However, two difficulties exist: Currently it is expensive to prepare an individualized program, and, even more important, as yet we have little operational experience in how programming should best be done. Examples of experimental work in the vocational-technical area are the computer programs being developed at the Pennsylvania State University for "Engineering Science," "Technical Mathematics," and "Communication Skills."[37]

Three systems can be identified for which various kinds of hardware have been or are being developed. The first, usually called a "Drill-and-Practice System," is mainly a supplement to a teacher's regular presentation. Currently, this application of technology is by far the most useful in an applied school setting. In simplest terms, the teaching machine relieves the teacher of a considerable burden and at the same time provides each student with an opportunity to do practice work at his own pace and at a determined level of complexity. In the mastery of arithmetic skills, for example, as the stu-

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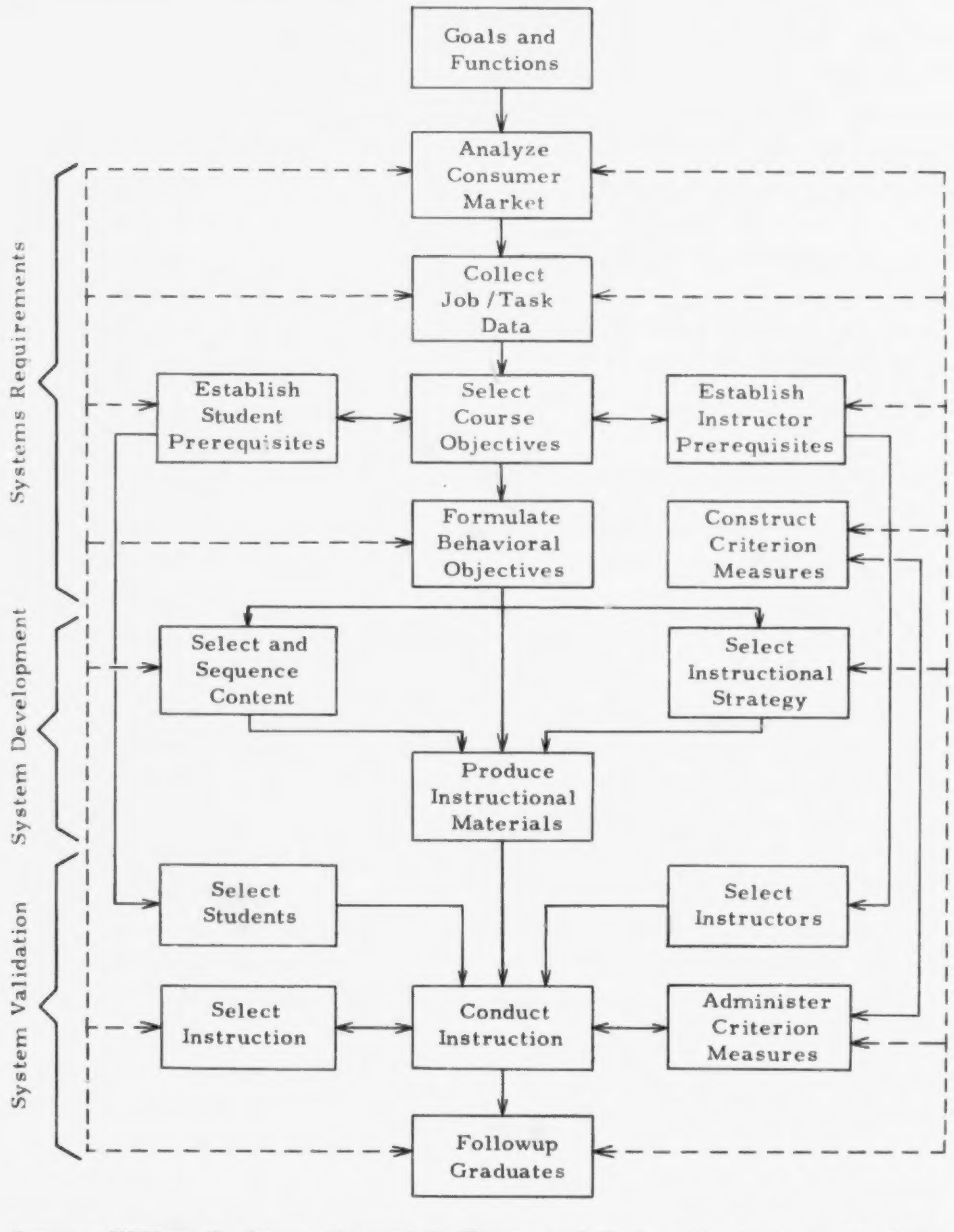
[36] William R. Tracey, Edward B. Flynn, and C. L. John Legere, "Systems Thinking for Vocational Education," *Educate*, 1 (November 1968), pp. 18-24.

[37] Harold E. Mitzell and George L. Brandon, *Experimentation with Computer Assisted Instruction in Technical Education—Semi-Annual Report* (University Park: Pennsylvania State University, December 1966), U.S. Department of Health, Education, and Welfare, Office of Education Project No. 5-85-074.

FIGURE 5-5. Model of a 15-Step Curriculum System.


Goals and Functions
Analyze Consumer Market
Collect Job / Task Data
Establish Student Prerequisites
Select Course Objectives
Establish Instructor Prerequisites
Formulate Behavioral Objectives
Construct Criterion Measures
Select and Sequence Content
Select Instructional Strategy
Produce Instructional Materials
Select Students
Select Instructors
Select Instruction
Conduct Instruction
Administer Criterion Measures
Followup Graduates
Systems Requirements
System Development
System Validation

Source: **William R. Tracy, Edward B. Flynn, and C. L. John Legere, "Systems Thinking for Vocational Education,"** ***Educate,*** **1 (November 1968), pp. 18-24.**

dent practices over and over, he receives instant evaluation of his efforts.

A second area of computer use is called the "Tutorial System." In contrast to the drill-and-practice system, the tutorial system assumes the principal responsibility for developing ability in the use of a given concept. With this system, the manner in which the evaluation information is programmed is very important because the answers are not always right or wrong; a selection is possible if the proper reason is given. In this way an attempt is made to approach the relationship of a tutor and a student. While more difficult to program than drill-and-practice exercises, tutorial programs have been developed in a number of subjects; skill subjects such as reading, mathematics, and elementary foreign languages are areas where a considerable amount of work has been done.

Still more complicated is the "Dialogue System," where the intent is for the student to conduct a general dialogue with the computer. For the most part dialogue systems now exist only as elementary prototypes because of some difficult technical problems that remain to be solved, one of which is that of recognizing the spoken word. When the theoretical possibilities are realized, a student will be able to talk to the computer in the same way he now uses a typewriter.

One writer describes the state of the art in these words: "Within the next decade many children will use individualized drill-and-practice systems in elementary school; and by the time they reach high school, tutorial systems will be available on a broad basis. Their children may use dialogue systems throughout their school experience."[38]

Project ABLE

One of the most interesting and comprehensive undertakings, and an appropriate summary of various curriculum innovations, is Project ABLE, a joint research effort of the public schools of Quincy, Massachusetts, and American Institutes for Research. This five-year project, which concludes in 1970, concerns the "Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School." In the following overview, adapted slightly from one of the quarterly technical reports, readers will note the inclusion of various innovative practices, which have been mentioned in other sections of this chapter.[39]

The principal goal of the project is to demonstrate increased effectiveness of instruction whose content is explicitly derived from analysis of desired behavior after graduation, and which, in addition, attempts to apply newly developed educational technology to the design, conduct, and evaluation of vocational education. Included in this new technology are methods of defining educational objectives, deriving topical content for courses, preparation of students in prerequisite knowledges and attitudes, individualizing instruction, measuring student achievement, and establishing a system for evaluating program results in terms of outcomes following graduation.

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[38] Patrick Suppes, "Computer Technology and the Future of Education," *Phi Delta Kappan*, 49 (January 1968), pp. 260-63.

[39] American Institutes for Research, *Project ABLE: Second Quarterly Technical Report* (Pittsburgh: Institute for Performance Technology, 1965), p. iii.

The procedure begins with the collection of vocational information for representative jobs in eleven different vocational areas. Analysis is then made of the performances required for job execution, resulting in descriptions of essential classes of performance which need to be learned. On the basis of this information, a panel of educational and vocational scholars develop recommended objectives for a vocational curriculum which incorporates the goals of (1) vocational competence; (2) responsible citizenship; and (3) individual self-fulfillment. A curriculum then is designed in topic form to provide for comprehensiveness, as well as flexibility of coverage, for each of the vocational areas.

Guidance programs and prerequisite instruction to prepare junior high students also are designed. Instructional materials, methods, and aids are selected, and new materials are designed, when required. An important step is the development of performance measures tied to the objectives of instruction. Methods of instruction are devised to make possible individualized student progression and selection of alternative programs, and teacher-training materials are developed to accomplish in-service teacher education of Quincy school personnel. A plan is developed for conducting program evaluation not only in terms of end-of-year examinations, but also in terms of continuing follow-up of outcomes after graduation.

It seems important to reiterate that this experimental project concerns the total curriculum, in which ". . . education is not conceived as being narrowly vocational, but rather as designed to produce effective and well-adjusted citizens for the modern world. Accordingly, the design of curricula and instructional procedures is intended to place suitable emphasis upon the need for generalizable knowledge having the aims of responsible citizenship, self-fulfillment as an individual, as well as flexibility of vocational choice in the face of changing occupational patterns."[40]

An interesting development in the area of "generalizable knowledge" is a series of learning experiences under the title of "Basic Technology" which may reach down into the elementary schools, the intent of which is to "acquaint *all* students, prevocational or preacademic, with generalizable knowledge that falls into six major categories.

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[40] American Institutes for Research and Quincy Public Schools, *Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School* (Pittsburgh: Institute for Performance Technology, 1964), p. 10.

1. *Mechanical,* including introductory knowledge of common types of machines, tools, connectors, fluid systems, and measuring instruments.
2. *Electrical,* introducing electricity and electronics as commonly applied at work and in the home.
3. *Spatial,* showing how simple geometry is found in structures and drawings.
4. *Chemical-biological,* explaining how elementary principles of chemistry, biology, and physics are found at work in the human body, medicine, foods, agriculture, and industry.
5. *Symbolic,* showing uses of clerical skills—words and numbers—that are important at work and in the home.
6. *People,* indicating important factors in getting and holding jobs —grooming, etiquette, loyalty, intelligent use of time.[41]

Project ABLE is using the "cluster concept" in providing learning experiences for specific vocational training. The eleven broad vocational families for which curricular materials are being prepared are: business education, computer data processing, electrical-electronics, food preparation, general piping, general woodworking, graphic and commercial arts, health occupations, home economics, metals and machines, and power mechanics.

It will be interesting to watch the progress of Project ABLE during the next few years. If the goals of this new approach are realized, the outcomes will be significant for schools everywhere. As one of the project directors remarked, "We're not talking only about vocational education here. We're talking about a new approach to *all* education in Quincy. If it's going to work in secondary school, it has to affect junior high school. In order to make that work, it's got to seep down to the elementary. If we really believe our thesis that every youngster should leave school with a salable skill, regardless of when he leaves, training has to begin very early, perhaps in kindergarten."[42]

What Lies Ahead?

As one contemplates the future of research and development efforts in curriculum and instruction, it is easy to predict that vocational-technical education "ain't seen nothin' yet." The Vocational Education Act of 1963 provided an infusion of money and support which resulted in a new and expanded interest in vocational-technical education on the part of many people, including some who had previously thought that anything "vocational" could not be "education." We have seen new understandings emerge along with an expanded vision of what needs to be done. There have been curriculum and instruction "spin-offs" from industry, the military, and independent research groups, and greatly expanded research and development activities within the universities.

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[41] *New Directions in Vocational Education.*

[42] Ibid.

This is the context in which one can report that during the past few years a significant start has been made in innovative practices with respect to curriculum and instruction. Most of the topics discussed in this chapter were selected to illustrate this trend. The 1968 Amendments to the Vocational Education Act practically guarantee that these trends will continue at an accelerated pace with the support necessary to carry out many kinds of experimental activities. We can expect various groups to receive grants or contracts which will enable them, in the language of the bill, to: (1) promote development and dissemination of vocational education curriculum materials, (2) develop standards for curriculum development in all occupational fields, (3) coordinate efforts of the states in this area and prepare current lists of curriculum materials in all occupational fields, (4) survey curriculum materials produced by other agencies of the government, (5) evaluate vocational-technical education curriculum materials, and (6) train personnel in curriculum development.

Some of the practices and programs mentioned in this chapter provide hints about the intriguing developments which lie ahead. Not the least of these possibilities are the attempts being made for an "early marriage" between general and vocational education. If this happens, the few schools which have started planning the "Educational Systems for the 1970s" will lead the way toward the truly integrated curriculum which can provide whatever kinds of learning experiences the student requires to meet his particular needs.

Chapter 6

CHANGES IN ADMINISTRATION, ORGANIZATION, AND PROGRAMS

J. Chester Swanson

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Chapter 6

CHANGES IN ADMINISTRATION, ORGANIZATION AND PROGRAMS

J. Chester Swanson

Educational and training programs for skills and knowledge to improve persons' abilities in production and services are vast and varied. All of these programs—in public schools, in private schools, in business, industry, and government—require organization of resources so that effective results can be obtained with reasonable effort or input. This management feature of vocational education is the theme of this chapter. The discussion will be further limited to the organization for administration of vocational education in government and the public schools.

Three levels of government are involved in the administration of vocational-technical education[1]—the federal government, the state government, and the local school district. These levels of government are not independent in their organization and activities. In fact one of the major objectives of the administrative organization at each level is to articulate effectively the mutual efforts and activities among all levels.

Organization for the Administration of Vocational Education in the Federal Government

There was no activity in vocational education in the federal government until the passage of the Smith-Hughes Act of 1917.[2] This

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[1] The term vocational-technical education will be used synonymously with vocational education. The hyphenated term is used to emphasize the fact that vocational education includes fields requiring extensive knowledge of science and mathematics and very exacting skills.

[2] Public Law 64-347, 1917.

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first federal legislation for vocational education mandated a specific organization for the administration of the provisions of this act.

The Smith-Hughes Act provided:

> That a Federal Board for Vocational Education is hereby created, to consist of the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, the U.S. Commissioner of Education, and three citizens of the United States to be appointed by the President, by and with the advice and consent of the Senate. One of said three citizens shall be a representative of the manufacturing and commercial interests, one a representative of the agricultural interests, and one a representative of labor.[3]

The citizen members were to be appointed for three-year periods with salaries of $5,000 per year.

This federal board was an independent agency, and as an independent agency it technically reported directly to the President. The board elected its own chairman and selected a director. Two hundred thousand dollars annually was provided for the use of the federal board and its staff. Figure 6-1 illustrates the organization for the administration of vocational education upon the passage of the Smith-Hughes Act. This organization remained in effect for sixteen years—until 1933. It is evident from this organization chart that the Federal Board for Vocational Education was a very prestigious body—three cabinet members and three others appointed by the President with the advice and consent of the Senate; and the chief officer for vocational education held a hierarchal position at a third level to the President of the United States.

In 1933 President Roosevelt issued an executive order which transferred the administrative functions of the Federal Board for Vocational Education to the Department of Interior with the provision that the Board should serve in an advisory capacity without compensation. The Secretary of Interior then directed that the administration of vocational education be organized as a subdivision of the U.S. Office of Education, and that the Director of the Federal Board for Vocational Education be designated as Assistant Commissioner for Vocational Education.

This series of changes made the chief federal officer for vocational education a subordinate to the U.S. Commissioner of Education, which at this time was a very insignificant part of one of the least significant departments of the federal government.

Some persons who were very knowledgeable about vocational education felt that this was the beginning of the end of direct involvement of the federal government in vocational education. Some evi-

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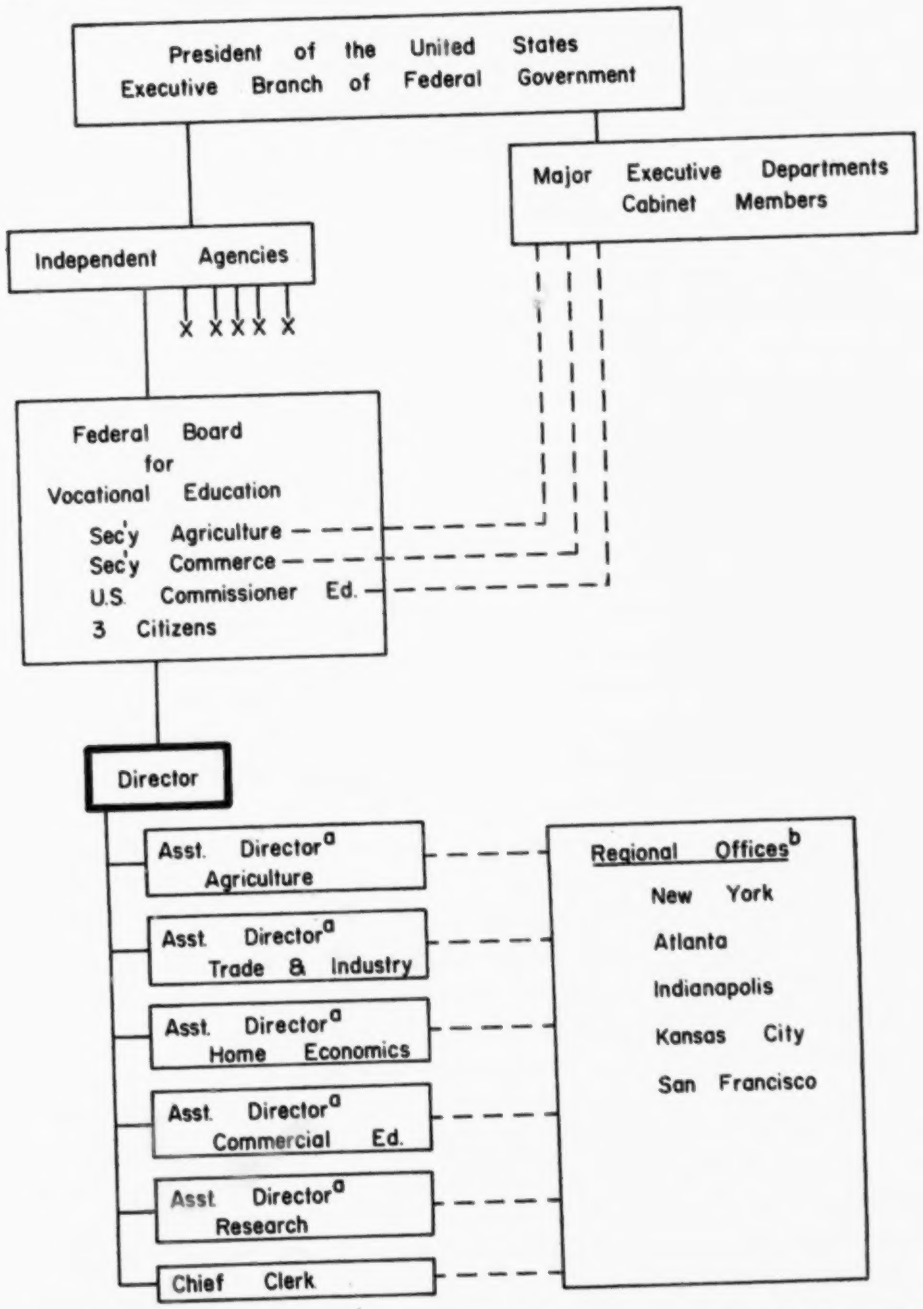
[3] Public Law 64-347, Sec. 6.

FIGURE 6-1. Organization Chart, Federal Board for Vocational Education, 1917–33.


President of the United States
Executive Branch of Federal Government
Major Executive Departments
Cabinet Members
Independent Agencies
X XXXX X
Federal Board for Vocational Education
Sec'y Agriculture
Sec'y Commerce
U.S. Commissioner Ed.
3 Citizens
Director
Asst. Director^a Agriculture
Asst. Director^a Trade & Industry
Asst. Director^a Home Economics
Asst. Director^a Commercial Ed.
Asst. Director^a Research
Chief Clerk
Regional Offices^b
New York
Atlanta
Indianapolis
Kansas City
San Francisco

[a] The title of Assistant Director was changed to Chief in 1920.
[b] Regional offices were abolished in 1920.

dence to support the fears that major changes were imminent was the creation of three new federal agencies for a type of vocational education—the Civilian Conservation Corps (CCC), the National

Youth Administration (NYA), and the Work Progress Administration (WPA). These three creations of the depression years (1932-40) were essentially relief organizations whose objectives were to give youth and adults worthwhile activities and economic aid. Each of these activities however did provide some types of training, education, or experiences which contributed to occupational skills. The WPA was an adult activity and was largely a group of make-work projects, at times of questionable economic value to the community, the state, or the nation. The program of the NYA at the other extreme was for youth and was in general quite similar in nature to our present industrial arts high school program. There is considerable evidence that at least the NYA and probably the CCC and WPA would, but for World War II, have continued and evolved into a permanent type of nationwide vocational training-work experience program, operated by the federal government in competition with state and local school district programs.

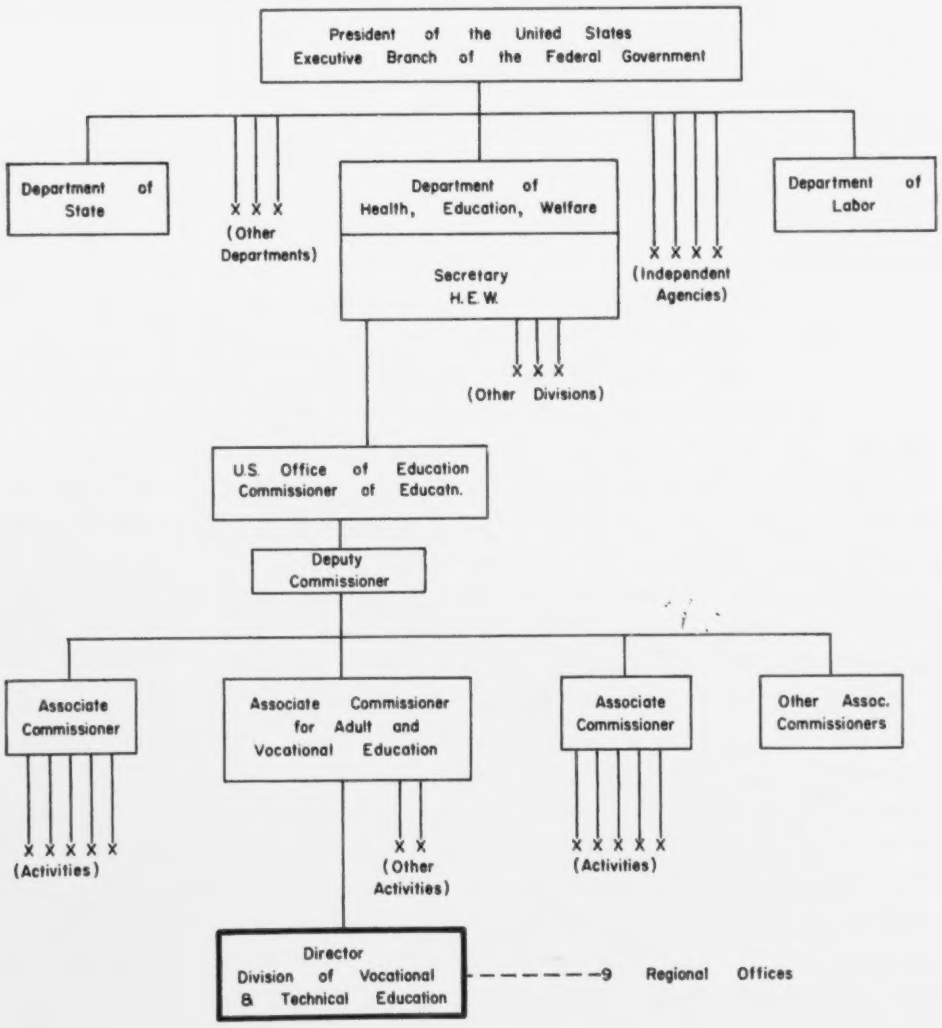
World War II called for large numbers of youth to enter the armed services. It also called for large numbers of persons to be involved in production. This demand for a tremendous increase in production related to national defense and worldwide military activities required extensive training programs. It became obvious that the newly created relief activities could not do the job. National leaders who were involved in planning for this national emergency turned to the leadership of vocational education.

There was created within the U.S. Office of Education a special division called Vocational Education for National Defense (VEND) —later called Vocational Education for War Production (VEWP)— which was completely financed by the federal government but did the training in the public schools. The result of this program probably was the most significant achievement of vocational education in its whole history. It provided a dramatic demonstration that a massive program for vocational training with significance for national defense could be organized and administered by the federal government in cooperation with the public schools and the state divisions of vocational education.

Since World War II, vocational education at the federal level has been characterized by numerous significant legislative acts which have (1) provided large increases in funds, (2) broadened the categories for which funds were appropriated, (3) and changed the philosophy from one of promoting vocational education ("seed money") to a national commitment of joint support of such programs for the national welfare. During this period there have been many reorganizations within the U.S. Office of Education for the administration of vocational education at the national level.

Figure 6-2 shows the organization for the administration of vocational education in the federal government as of February 1969. The most significant feature of the organizational relationships in 1969 compared to 1917 is the hierarchal placement of the Division of Vocational Education. With a U.S. Office of Education administered by a commissioner, a deputy commissioner, seven associate commissioners, two deputy associate commissioners, nine assistant commissioners, and twenty directors, the Vocational Education Division approved by Congress and responsible for almost one billion dollars a year is at the fifth level in the hierarchy of the Department of Health, Education, and Welfare. An intensive study should be made at some time of the status given to vocational education since it has

FIGURE 6-2. Organization for the Administration of Vocational Education at the Federal Level, 1969.


President of the United States
Executive Branch of the Federal Government
Department of State
X X X
(Other Departments)
Department of Health, Education, Welfare
Secretary H. E. W.
X X X X
(Independent Agencies)
Department of Labor
X X X
(Other Divisions)
U.S. Office of Education
Commissioner of Educatn.
Deputy Commissioner
Associate Commissioner
X X X X X
(Activities)
Associate Commissioner for Adult and Vocational Education
X X
(Other Activities)
Associate Commissioner
X X X X X
(Activities)
Other Assoc. Commissioners
Director
Division of Vocational & Technical Education
9 Regional Offices

been a responsibility of the Secretary of Health, Education, and Welfare.

The role of the federal government in vocational education has been to promote, encourage, and finance these services throughout all the states. The provisions of the law, the rules and regulations of the federal administration, and the basic philosophy have been to perform all these functions through the state division of vocational education, via its state board and state director. However, this federal-state relationship is not the only method that could be used.

During the depression years of the 1930s, the NYA and CCC programs, described earlier, were education/relief programs operated by the federal government, but not administered by the U.S. Office of Education nor by the education department of the state government. Some of the leadership of these programs was quite determined that the programs be the foundation for a permanent national system of vocational education/relief agencies. It was with great difficulty that the Congress discontinued these programs during the World War II period, even though these activities had no students, had a very small staff, and the need no longer existed to meet depression-period objectives which created the agencies. The federal government was very close to establishing a continuing educational program parallel to and in competition with the public schools of the states. The case was made that the public schools were not satisfactorily meeting the needs of these youth and that the only adequate solution was a federally operated system of schools.

During the fifty-two years of federal involvement in vocational education, a number of persons have been disappointed in the vocational education programs and have considered that a better solution would be a national system of vocational schools operated by some agency other than the U.S. Office of Education and state departments of education. Some persons considered the U.S. Department of Labor to be the proper federal agency to administer such programs; in many European countries a counterpart to our Department of Labor does administer vocational education.

At this time there is a national vocational education program operated parallel to the public schools and administered by an agency other than the Office of Education and the state departments of education. This is the Job Corps Training Centers operated by the Office of Economic Opportunity, independent of any of the major federal departments and not through any state agency. The objective is to develop a vocational education program for older youth who are in general failures and dropouts from public schools. Much larger per pupil expenditures are available, and the environment and services are unique to the needs of these youth. Present federal legislation proposed that a plan be developed whereby these training centers be operated by the states and administered as a part of the Office of Education's Division of Vocational and Technical Education.

The Division of Vocational and Technical Education and its earlier predecessors have produced evidence that the objectives of the federal legislation can be achieved by the present type of federal-state cooperation. It is hoped that the Division will be given adequate support and a status position from which effective leadership can emanate. Consideration should be given to making the Division a separate unit in the Department of Health, Education, and Welfare with status coordinate with that of the Office of Education.

Organization for the Administration of Vocational Education in State Government[4]

Vocational education programs were few and far between before the initial federal legislation for vocational education provided the possibility of special funds. This first federal legislation established three basic mandates related to the organization for administration of vocational education within a state desiring these funds:

> (1) . . . in order to secure the benefits of the appropriations provided for in . . . this Act, any state shall . . . designate or create a state board, consisting of not less than three members, and having all necessary power to co-operate . . . with the Federal Board for Vocational Education in the administration of the provisions of this Act.[5]
>
> (2) . . . in order to secure the benefits of the appropriations for any purpose specified in this Act, the state board shall prepare plans, showing the kinds of vocational education . . .; the kinds of schools and equipment; courses of study; methods of instruction; qualifications of teachers; . . . qualifications of supervisors or directors; plans for training teachers; . . . Such plans shall be submitted by the state board to the Federal Board for Vocational Education and if the Federal Board finds the same to be in conformity with the provisions and purposes of this Act, the same shall be approved.[6]
>
> (3) [The] State director [is] the person directly responsible for the administration of the total State program of vocational education under the plan and the coordination of the work of the State supervisors.[7]

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[4] The content of this section draws heavily on a recent study by the same writer: J. Chester Swanson, *A Nationwide Survey of Status and Organization of Vocational-Technical Education Agencies at the State Level* (Berkeley: University of California, School of Education, 1967). This study was performed under a grant from the U.S. Office of Education from funds made possible by P. L. 88-210, Part A, Sec. 4 (c).

[5] Public Law 64-347, Sec. 5.

[6] Public Law 64-347, Sec. 8.

[7] *Administration of Vocational Education, Rules and Regulations* (Washington: U.S. Department of HEW, Office of Education, 1958), Part 102.1 (g).

The State Plan

Beginning with the Smith-Hughes Act, all federal vocational education legislation has required a state to develop a *State Plan* which describes the nature of the program to be developed with the federal funds. The State Plan is reviewed by the U.S. Office of Education and if it conforms to the provisions of the legislative act, it is approved and becomes a contractual agreement between the state and the federal government. This process assures that the provisions of the act are followed but allows a state to establish its own standards and procedures.

The State Board for Vocational Education

The State Board for Vocational Education is mandated by federal legislation if a state uses federal funds; but the size (a minimum of three members is required), the composition, the method of selection, the procedure, etc., are not a requirement of the federal law, and thus each state has a wide latitude in which to conform to unique state needs or desires. As would be expected, under these conditions state boards for vocational education vary widely.

As of 1969, forty-five states designate their state boards of education to be also their state boards for vocational education. One state designates the Board of Regents of its state university as its state board for vocational education.

State board members are elected, either by popular vote or by the legislature, in twelve states. The board members in the four states with separate boards are not elected. The method of selection varies considerably in the thirty-eight states where the board members are not elected: in thirteen states all members of the board are ex officio; in another thirteen the appointments are made by the governor; in twenty-four states selection is made at the discretion of the governor, twelve of these states requiring confirmation by one or both houses of the legislature.

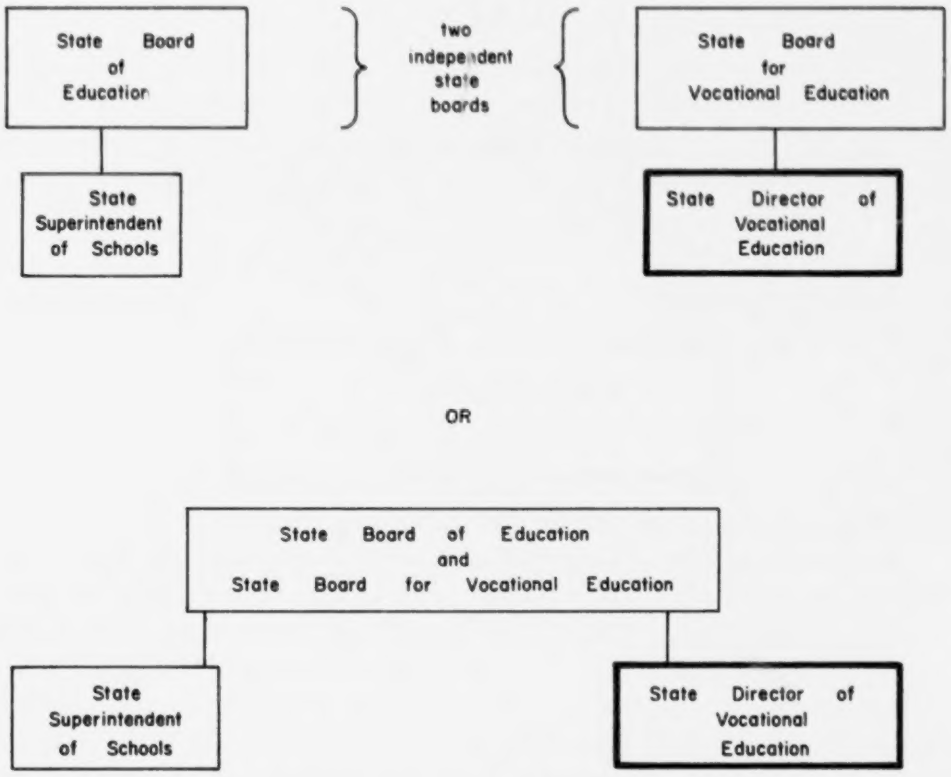
The State Director of Vocational Education

The executive officer of the state board for vocational education is appointed to this office in thirty-five states; appointment is by the state board in thirty-one states, by the governor in two states, and by the chief state school officer in two states.

The state director serves as the executive officer of the state board in seven states. In all other states the chief state school officer (superintendent of public instruction, commissioner of education, etc.) serves as executive officer of the state board for general education and also of the state board for vocational education where the general board acts as vocational board.

The state director of vocational education may have one of several additional titles, such as assistant state superintendent, associate state superintendent, assistant state commissioner of education. These other titles usually indicate his hierarchal position in the state education staff. The highest hierarchal position is when the state director reports directly to the state board for vocational education. This situation exists in either one or the other of the organizational patterns set forth in Figure 6-3.

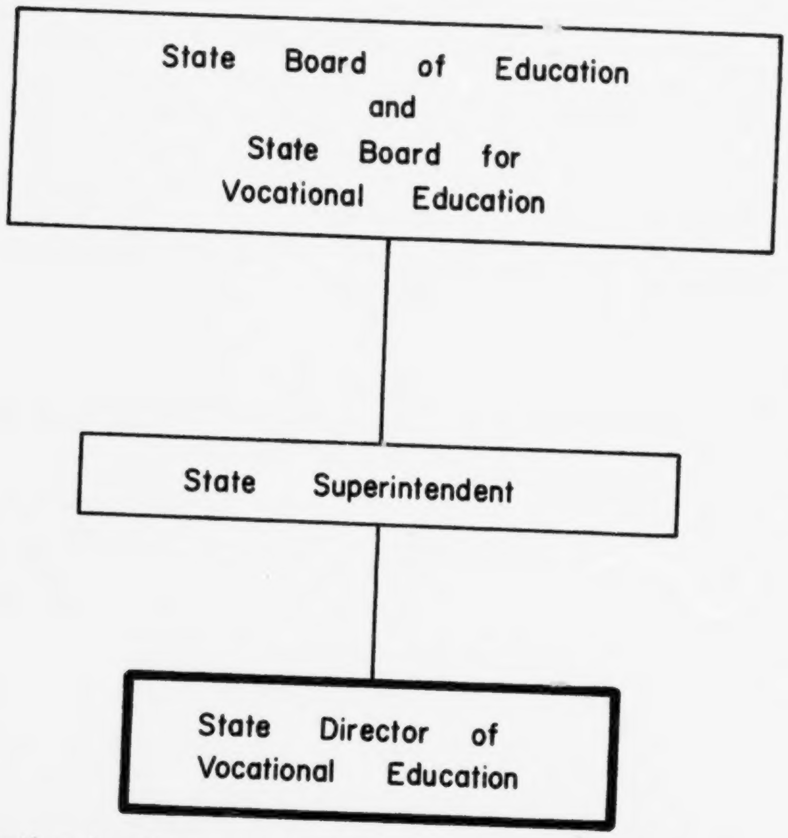
FIGURE 6-3.


State Board of Education
two independent state boards
State Board for Vocational Education
State Superintendent of Schools
State Director of Vocational Education
OR
State Board of Education and State Board for Vocational Education
State Superintendent of Schools
State Director of Vocational Education

The state director has this hierarchal position in seven states, reporting to a separate board in four states and to a board serving in two capacities in three states. The state director is at the highest authority level in this position and should be able to have the greatest influence on policy making for vocational education. The state board should be able to obtain information more directly and therefore probably more completely than in other organizational arrangements. Difficulties under this condition are the coordination and articulation with the other educational programs in the public schools.

A lower hierarchal position exists for the state director when he reports to the state board through the chief state school officer. This

FIGURE 6-4.



organizational pattern can be illustrated in Figure 6-4.

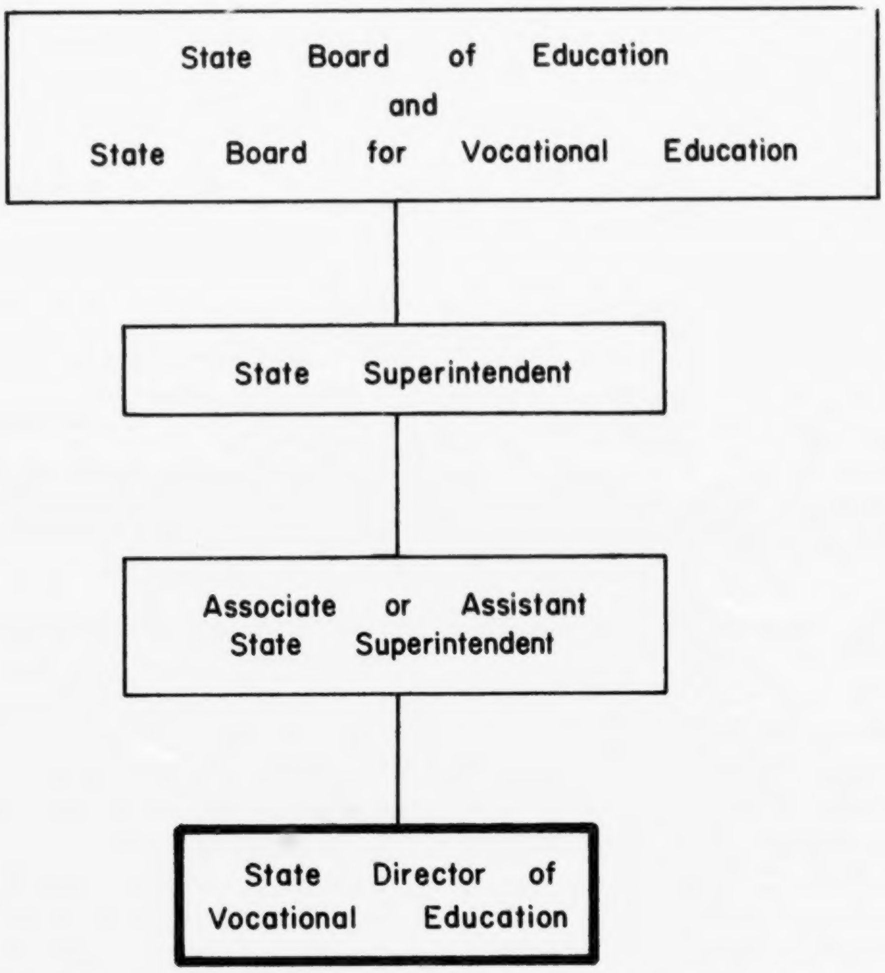
In this situation, which exists in twenty-nine states, the state director is subordinate to the chief state school officer. There is some hierarchal difference within this type of organization since in some states the director may also have the title of assistant superintendent or associate superintendent. This addition gives the director additional status in relation to other second- and third-level administrative staff members. The state director has such an additional title in fourteen of the twenty-nine states with this organization pattern.

In fourteen states the director is at a still lower hierarchal level. This organizational pattern is illustrated in Figure 6-5.

The state director in this organizational pattern reports to the state board for vocational education through two staff members with superior hierarchal positions. It would be expected that the director would not be able to influence policy-making under these conditions as effectively as when reporting directly to the superintendent or to the state board.

A study was made recently to determine whether there were any significant differences in the nature of the vocational program in a

FIGURE 6-5.


State Board of Education
and
State Board for Vocational Education
State Superintendent
Associate or Assistant State Superintendent
State Director of Vocational Education

state which might be related to the hierarchal position of the state director.[8]

Selected results of this study are given in Table 6-1. A conclusion from this study stated:

> Differences were found among the states grouped according to the hierarchal position of the state director of vocational education in the state administration of public education. However, before generalizing upon any of the findings of this study, one must consider other factors. It must be recognized that the state directors represent a great diversity in training, experience, personality traits, and leadership qualities. It must be recognized that they work in environments where state educational leadership and local school-state department of education relationships are quite different.[9]

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[8] Swanson, *A Nationwide Survey of Status and Organization of Vocational-Technical Education Agencies at the State Level*, pp. 14-22.

[9] Ibid., p. 60.

TABLE 6-1. Hierarchal Position of State Director of Vocational Education Related to Selected Program Operation Factors

Hierarchal Position of State Director	Program Operation Level	Enrollments — Median Percent		Teachers Vo. Ed. / State Staff Vo. Ed.	Program Operation Expend. / Vo. Ed. Student
		Percent Total Vocational Education, 1966-67	Total Growth Vocational Ed., 1962-63 to 1966-67		
Reports directly to state board	Secondary	40	52	49	$224/year
	Post-Sec.	10	110		
	Adult	50	34		
Reports to state superintendent	Secondary	47	86	38	$209/year
	Post-Sec.	8	355		
	Adult	43	42		
Reports to subordinate of state supt.	Secondary	55	259	70	$206/year
	Post-Sec.	7	263		
	Adult	36	42		

Source: J. C. Swanson, *A Nationwide Survey of Status and Organization of Vocational-Technical Education Agencies at the State Level* (Berkeley: University of California, School of Education, 1967), Tables 2, 4.

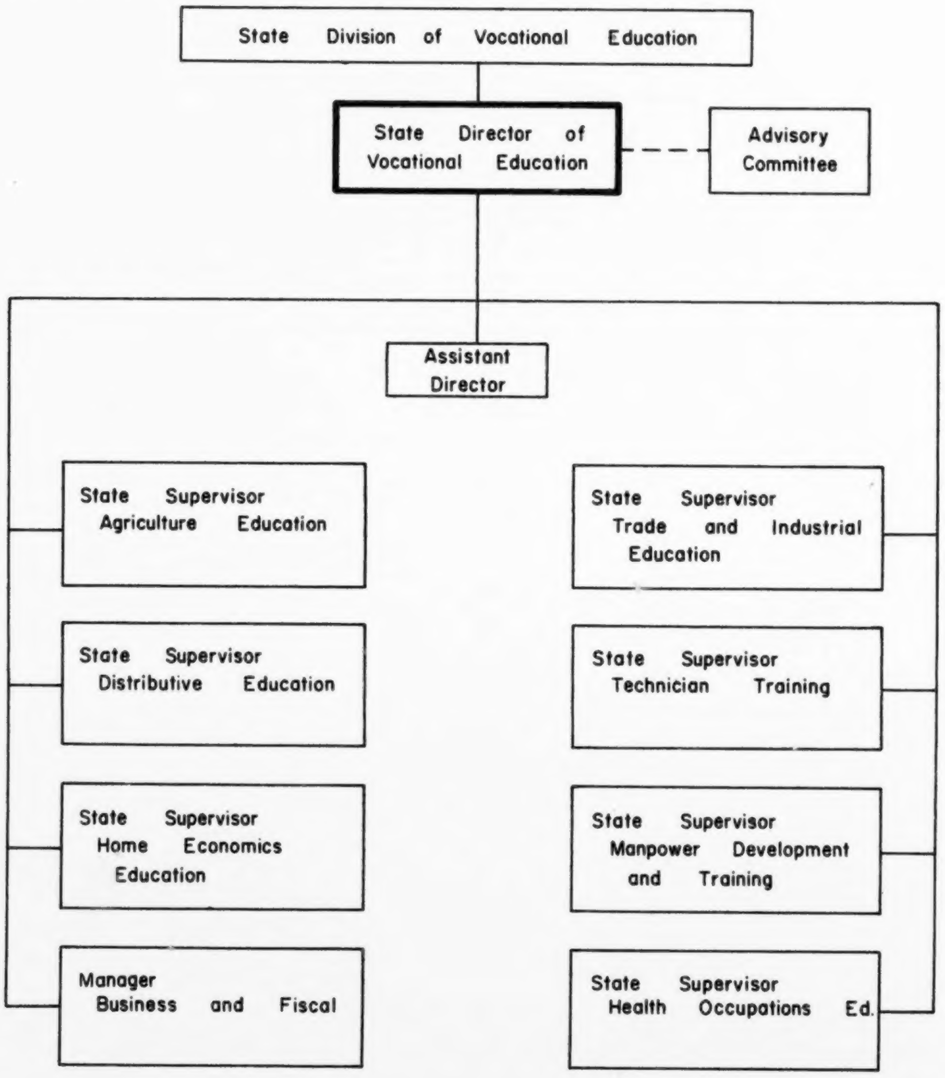
The Organization for the Administration of Vocational Education within the State Division of Vocational Education

Regardless of the hierarchal position of the state director, he must have a staff to assist him and an organizational pattern establishing relationships and assigning areas of responsibility. The requirements for use of funds have until recent years been quite restrictive and categorized. The result was that the reporting system and staff assignments logically followed such a pattern. Thus one would find in every state division assistants to the director in vocational agriculture, trade and industrial education, home economics, and financial services. When distributive education became a financial category, a director of "D. E." was added to the staff. Similarly, technical education, nursing education, and MDTA (Manpower Development and Training Act) staff assistants were added to recognize the need for specialized professional leadership and expertise.

In 1962 a rather typical staff organization chart for a state division of vocational education could be illustrated as in Figure 6-6. The size of the staff would vary considerably, depending upon the population of the state and extent of the program. The difference in size of the staff would be reflected primarily in the number of professional personnel assigned to the various state supervisors.

More recent federal legislation for vocational education (P. L. 88-210 and P. L. 90-576) removed the traditional occupational categories, making it practical and in many respects desirable to establish a different organizational pattern for the administration of voca-

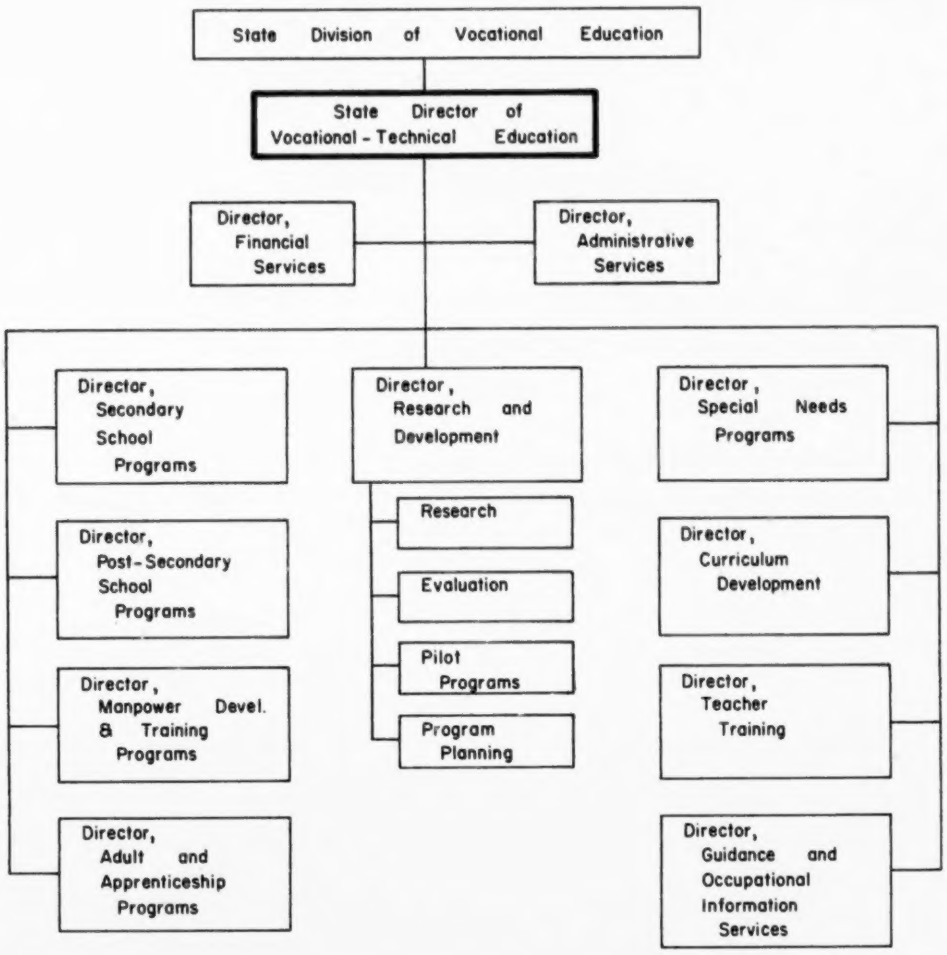
FIGURE 6-6. Typical Organizational Chart of a State Division of Vocational Education, 1918 to 1962.


State Division of Vocational Education
State Director of Vocational Education
Advisory Committee
Assistant Director
State Supervisor Agriculture Education
State Supervisor Distributive Education
State Supervisor Home Economics Education
Manager Business and Fiscal
State Supervisor Trade and Industrial Education
State Supervisor Technician Training
State Supervisor Manpower Development and Training
State Supervisor Health Occupations Ed.

tional education. This trend toward a different administrative organization is now in process and no standardized structure has been generally accepted. Figure 6-7 gives one of the more recent organizational patterns showing a polarization around levels of instruction and general functions rather than occupational categories.

The federal government requires that a state designate a single board and one person, the state director, to be responsible for the funds allocated to the state under the mandates of federal legislation. Some of the states in recent years have established multiple education boards at the state level which have responsibilities for certain parts of the vocational education program. This situation usually

FIGURE 6-7. Organizational Chart Illustrating Recent Trends in State Pattern for Administration of Vocational Education.


State Division of Vocational Education
State Director of Vocational - Technical Education
Director, Financial Services
Director, Administrative Services
Director, Secondary School Programs
Director, Research and Development
Director, Special Needs Programs
Research
Evaluation
Pilot Programs
Program Planning
Director, Post-Secondary School Programs
Director, Curriculum Development
Director, Manpower Devel. & Training Programs
Director, Teacher Training
Director, Adult and Apprenticeship Programs
Director, Guidance and Occupational Information Services

occurs when a state has a large junior college program and establishes a separate state board for this program. A problem then arises: Which board should be *the* state board for vocational education?

In California and Washington, for instance, the state board of education has been also the state board for vocational education. These states then have two systems of educational institutions, each with a state-level administrative board. Washington established another state board which became the state board for vocational education and is a coordinating board between the state board of education, with its responsibility for the secondary school program, and the state junior college board with its program. California is considering a similar new state board which would have representation from the state board of education, the state junior college board, and laymen representing business, industry, and labor.

The state of Hawaii has a unique organization. The state board of education, which was also the state board for vocational education, operated a state system of vocational schools which had developed into post-secondary vocational schools. The Board decided that since the post-secondary programs were more rightly a part of the system of higher education, these schools should be transferred to the jurisdiction of the Board of Regents of the University of Hawaii. The University then established the position of vice-president for junior colleges and placed these institutions under his jurisdiction. They then became the nucleus of junior colleges. The state board of education and vocational education during the same period discouraged vocational programs at the high school level. The result was that the state board for vocational education was receiving the federal funds for vocational education and allocating most of them to the University Board of Regents. The state legislature has recently designated the Board of Regents of the University as the state board for vocational education.

These examples of quite diverse administrative organizations illustrates the flexibility of federal legislation by the use of a *state plan* as the contractual arrangement between the federal and state governments.

The Function of State Division of Vocational Education

Regardless of the staff organization for the administration of vocational education, the role and function of the state division remains relatively the same. These activities might be listed as follows:

1. Establish goals and objectives.
2. Perform, encourage, and disseminate research and evaluation studies.
3. Plan and develop pilot projects, new curricula, innovative activities, and immediate and long-term programs.
4. Provide services such as fiscal auditing, program standards, liaison with other state and federal agencies, credentialing vocational teachers, and consultant services.

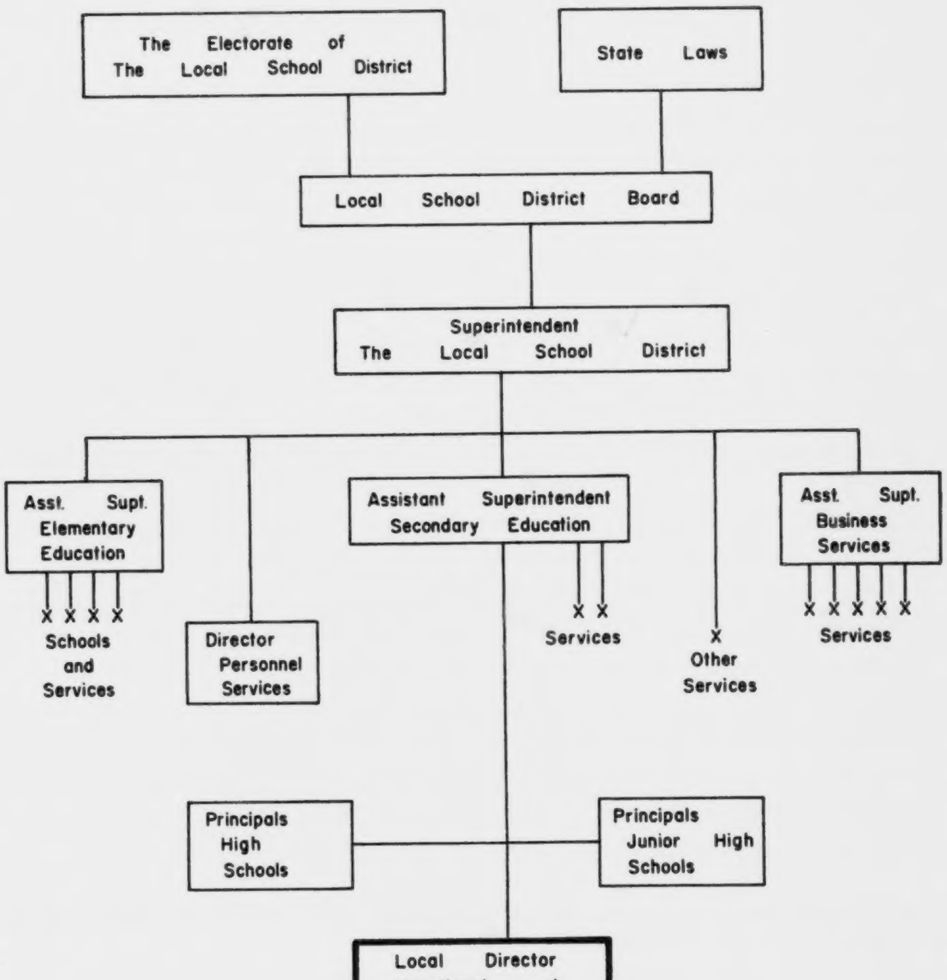
The activities are required by state and federal laws or by good administrative or leadership practices. The quality or priority of these activities varies from state to state depending upon the type and number of personnel within the state division and the external political environment of the state government.

The Organization for the Administration of Vocational Education in Local School Districts

Our nation is committed to the administration of its public schools by local districts with their own elected school boards. To the local school board is delegated the authority to levy taxes, employ teachers, and operate the schools within the laws of the state. This is the general organizational pattern in every state except Hawaii and Alaska. These two states have state systems with no local school boards.

The typical organization for administration of a local school district is illustrated in Figure 6-8, where the local director of vocational education is shown reporting to an assistant superintendent for secondary education. In some school districts there is an assistant superintendent for instruction, with a director of secondary education reporting to him. In this pattern the local director of vocational education would usually report to the director of secondary educa-

FIGURE 6-8. Organizational Chart Illustrating Organization for the Administration of Vocational Education at the Local School District Level.


The Electorate of The Local School District
State Laws
Local School District Board
Superintendent The Local School District
Asst. Supt. Elementary Education
X X X X
Schools and Services
Director Personnel Services
Assistant Superintendent Secondary Education
X X
Services
X
Other Services
Asst. Supt. Business Services
X X X X X
Services
Principals High Schools
Principals Junior High Schools
Local Director Vocational and Adult Education

tion. However, in some organizations the local director of vocational education would report to the assistant superintendent for instruction. There are some school districts where the local school administration considers the responsibility of the local vocational director important enough to have him report directly to the superintendent of schools.

Vocational education has a number of features which are quite different from the usual academic programs, and these features may make it important that the superintendent and the local school board know and understand details which may not be as important for the academic program. Vocational instruction must be carefully and continuously related in content and enrollment to the labor market. The business, industrial, and labor organizations often become very concerned about the nature of vocational instruction. Some laws and financing practices are unique to vocational programs. There may be severe conflict between academic personnel and vocational education personnel.

These conditions provide reasons which make it desirable for the superintendent to obtain information directly from his "expert" on vocational education. This direct contact is easier when the local director reports directly to the superintendent. The local director might have the title of *director for vocational education* or *assistant superintendent* in charge of vocational education. Under these conditions, Figure 6-8 would show the director in a position equal to that of the director of personnel services, if his title were *director*; or a position equal to that of the assistant superintendent, if his title were *assistant superintendent*.

Thus, in local school district organization as in state organization, the chief vocational education person may have any of a number of different hierarchal positions. This hierarchal position may well indicate the respect the administration has for vocational education and may be a measure of the authority vested in the local vocational education director.

The Functions of the Local Director of Vocational Education

The teacher-learning process takes place at the local school district level. Thus the local director of vocational education is the administrator closest to the scene of action. This gives him some unique opportunities and responsibilities for developing programs, evaluating the teacher-learning process, and providing the assistance to improve these services to students and the community.

The task of the local director is a combination of administrator and supervisor. His administrative duties are often joint ones with the principal of the school in which vocational teachers work. If there is a separate vocational school, he will have the responsibility for the total program of the school with a principal in charge.

Under all conditions he will have major responsibilities for:

1. *The recruitment and selection of teachers.* This is a unique teacher-recruitment task because many vocational teachers cannot be recruited through the usual teacher placement services. The skills required can be quite different from those required of the academic teacher. The school principal is of course also involved in these selections.

2. *The evaluation and supervision of instruction.* Here again, the unique skills of the vocational teacher require a specialist in order to perform or plan for evaluation of content, processes, and results of the instruction.

3. *The manaagement of supplies, equipment, and facilities.* Much of the material of vocational instruction requires constant attention during the program.

4. *Liaison with business, industry, labor, and state leaders* with interests in vocational instruction. These contacts are often quite different from the normal educational relationships.

5. *Planning for changes and innovations in these programs.* The labor market which vocational education serves is quite capricious, and effective vocational education services demand constant alertness to recognize any need for change and to plan for innovation.

The quality of leadership is very important in the administration and supervision of vocational education at all levels—federal, state, and local—just as it is in all human activities. The experience, training, personal qualities, and "drive" of the administrators are most important. But the pattern of relationships also contributes invaluably to the effectiveness of the programs. The authority and responsibility of each person in these programs must be clearly described and the relationships understood. This is the purpose of the organization for the administration of vocational-technical education.

Chapter 7

CHANGING RELATIONSHIPS BETWEEN SCHOOLS AND INDUSTRY

Samuel M. Burt

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Chapter 7

CHANGING RELATIONSHIPS BETWEEN SCHOOLS AND INDUSTRY

Samuel M. Burt

Overview — A New Beginning

The decade of the 1960s will intrigue historians as the period during which our nation embarked on many new paths. To the social scientist the most interesting of these new directions may well be those which are evolving from what has come to be called the "social conscience" of business organizations and businessmen. This social conscience has led to their participation in programs to resolve such ills of society as poverty, unemployment, racial discrimination, poor and irrelevant public education, waste of human and natural resources, and other problems so unfortunately familiar to our times.

While industry's social conscience is not a new phenomenon on the American scene,[1] the 1960s may have been the first time that many industry people have become intimately and constructively involved in the problems of disadvantaged minorities—particularly in recruiting, employing, and training chronically unemployed youth and adults. The lessons industry has learned from its participation in the War on Poverty and other manpower development programs has convinced great numbers of employers that the best way for this country to disengage itself from a permanent program of remedial education and vocational training in their shops and offices is to become directly involved in improving public education.

The "double taxation" to employers—paying for public school education and training, and then paying again for remedial on-the-

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[1] "Industry" is used in this chapter to include representatives from business, labor, agriculture, and the professions as well as from manufacturing etc.

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job programs—does not make sense to anyone, least of all to cost-conscious, profit-motivated employers. Added to this concern, of course, are the pressures of a long period of shortages of skilled manpower during the 1960s and the ever-increasing pace of technological change demanding higher levels of education and training for more and more entry-level jobs. These two factors alone have stimulated many industry people to seek assistance from educators in establishing new or in improving existing vocational and technical education programs in the public schools.

Industry people have also become involved in vocational education through their activity with the Job Corps (either as contractors operating Centers or as members of Job Corps advisory committees), as manufacturers and developers of new "hardware" and "software" for use in skill training programs, as members of advisory committees for Skill Development Centers and for Manpower Development and Training Act (MDTA) programs, as members of Plans for Progress, the Urban Coalition, and the National Alliance of Businessmen (JOBS program), and as members of newly formed local and regional general industry-education councils sponsored by industry. As a result of these activities, all initiated during the 1960s, and others to be discussed in this chapter, many new thousands of industry people have become knowledgeable concerning vocational education programs and problems. The addition of this new group to the more than 100,000 industry representatives estimated as already participating prior to 1960 in public school vocational and technical education programs as members of industry-education advisory committees (plus other thousands of employers cooperating with vocational educators on an informal basis)[2] puts educators in a better position than ever before to utilize the nation's industrial structure in making their school programs vital and viable forces both to our economy and to millions of young people seeking appropriate education and training for productive and meaningful lives in the mainstream of America. This promise will become a reality, however, only to the extent that educators properly understand, interpret, and direct the desires and energies of these interested industry representatives.

For over fifty years, almost from the beginnings of a national system of vocational education in the U.S., industry and vocational educators have recognized the mutual benefits inherent in cooperative efforts related to the conduct of vocational education programs.

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[2] Samuel M. Burt, *Industry and Vocational-Technical Education* (New York: McGraw-Hill Book Company, 1967). See Chapter 10, "Local Occupational Cooperating Committees."

Federal laws dealing with vocational education have encouraged the involvement of industry representatives in order to provide advice and direction to the educators. The 1968 Amendments to the Vocational Education Act of 1963 (Public Law 90-576) contains unique and unprecedented provisions for industry participation. At both the national and state levels, educators must establish formal advisory committees composed of representatives of business, labor, industry, agriculture, the professions, and the general public to advise and assist in the conduct and evaluation of vocational education programs. Funds are provided for staff and technical assistance to the advisory councils so that they may operate as organizational entities distinct from the state boards of education. This new federal law, together with existing state laws (and/or rules and regulations of state departments of education) requiring local schools and school systems offering vocational education to seek the advice and cooperation of industry representatives in their communities, establishes for the first time a system of advisory councils and committees for vocational education at the local, state, and national levels. This system is unparalleled in any other field of education or in any other phase of manpower development and training. As contradictory as it may seem, we have "mandated the cooperation of volunteers" in the service of vocational and technical education. The impact of this mandate, and the growing recognition by industry of the social and "dollars-and-cents" benefits to be derived from a national commitment to a vocational education system, augurs well for a new era in both formal and informal industry-school cooperation. It is an era which will see expanded, intensified, and new strategies emerge for assuring relevant vocational education programs through effective utilization of industry by educators—not so much by moral exhortation and social pressure as by the enticing carrot of profit and economic gain for entire communities as well as for individual industries and business organizations.

The Role of Industry

Industry Initiative in Developing School Relationships

Industry's continuing high level of investment in new capital equipment to meet the challenges of new technologies presages an increasingly high level of demand for technically trained people to help design, control, and operate that equipment. Company executives recognize that on-the-job training is not sufficient to meet all the educational and training needs of either the company or its employees. As they cast about for ways to upgrade the skills and knowledge of employees at all levels, more often than not they will turn to the schools for assistance.

While there is nothing new in industry-education relationships, it is important to note the increasing extent to which industry is prepared to initiate them. In a study of over 1,000 companies, the National Industrial Conference Board found that business interest in public affairs has increased significantly in recent years, and that a majority of the companies which indicated their concern with socioeconomic problems were initiating action to help solve many of the problems. Matters "most closely related to business interests" received the highest percentage of replies indicating action initiation;[3] fourteen societal problem areas in which companies are taking the initiative in helping find solutions included five dealing with education and training. (See Table 7-1.)

The extremely high percentage of companies concerned with improvement of career and work opportunities for minority groups is, of course, a reflection of the efforts of government agencies to harness the social conscience of industry in the nation's manpower development programs. As the result of such involvement, industry has come to recognize that many of the problems connected with the employment of disadvantaged minority group individuals stem from their previous lack of educational opportunities. What must be done to overcome this deficiency and deprival has been a traumatic and sobering experience for industry people.

Industry Involvement in Manpower Development, Training, and Employment Programs of the War on Poverty

Leading governmental "fighters" of the War on Poverty, including legislators, have insistently pointed out the need for and desirability of involving industry in making possible the employment of the disadvantaged poor and chronically unemployed. This insistence resulted in the Office of Economic Opportunity contracting with a number of industrial organizations to operate Job Corps centers, and the U.S. Department of Labor and Office of Education contracting with employers, trade associations, and unions to conduct remedial education and training programs under provisions of the Manpower Development and Training Act. Some MDTA programs were developed in cooperation with local school systems, some with business organizations specializing in remedial education and skill training. Industry advisory committees were established for almost all OEO and MDTA projects; it is estimated there are some 1,400

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[3] *The Role of Business in Public Affairs,* Studies in Public Affairs No. 2 (New York: The National Industrial Conference Board, Inc., 1968), pp. 26-27.

TABLE 7-1. Company Willingness to Initiate Action on Education and Training Problems

	Percent of Companies					
		By Size			By Industry	
	Total Respondents	Small	Medium	Large	Manufacturing	Nonmanufacturing
Number of Companies	(1,033)	(146)	(494)	(393)	(683)	(350)
Improvement and expansion of local school facilities	55.6%	59.6%	54.9%	55.0%	56.4%	54.0%
Improvement of local school curriculum	48.5	50.7	49.4	46.6	48.8	48.0
Problems associated with school dropouts	53.9	58.9	52.2	54.2	52.7	56.3
Improvement of work/career opportunities for minority groups	69.2	69.2	65.2	74.3	67.9	71.7
Retraining of workers rendered unemployed by automation	72.6	73.2	70.6	74.1	74.1	69.7

Source: The National Industrial Conference Board, Inc., The Role of Business in Public Affairs, Studies in Public Affairs No. 2 (New York: The Board, 1968), p. 26.

MDTA advisory committees involving over 10,000 representatives of industry and other segments of our economy. What makes for successful industry-education cooperation can be gleaned from the following brief descriptions of industry involvement in several War on Poverty programs.

The Job Corps Center, Gary, Texas. The Texas Educational Foundation operates, on a nonprofit basis, the Gary (Texas) Job Corps Center under contract with the Office of Economic Opportunity. The Foundation established a subsidiary organization, Opportunities, Inc., consisting of fourteen of the largest companies in Texas and one hundred smaller firms. Opportunities, Inc., at first had a formal subcontract with the Foundation and subsequently became an adviser to the Center. During the organizational period, a number of companies lent business managers and were reimbursed only for their salary costs.

The Job Corps headquarters staff rates the Gary Center as uniquely successful primarily, they believe, as a result of the relationships developed between the businessmen of Opportunities, Inc., and the Center staff. The following statement is excerpted from the report of Steven Kurzman to the Senate Committee on Labor and Public Welfare:

> What seems most important about the relationship is that the businessmen appear to take their advisory role seriously, particularly in two crucial areas of Center operation: job training and placement. Opportunities, Inc. established a board of visitors consisting of the top vocational training men in each of the member companies. The board visits the Center at least every 3 months and an effort is made to insure that the companies represented on it have had experience themselves with the particular skill training the Center is already engaging in. What is most important, the suggestions of the board about ways to improve the training are apparently adopted by the Center staff. And the board is invited in by the staff to help deal with specific problems. This kind of broad business impact on the content of Center training activity is obviously very valuable and difficult to match with a single industrial contractor or even with one or two business subcontractors. It may be significant for the success of this effort that the companies involved in Opportunities, Inc. are generally not competitive with one another in the business areas. . . .
>
> The second impressive feature of the Gary experience, its high placement record, is also attributable heavily to its business component and not necessarily to the fact of its non-profit structure. Each of the companies in Opportunities, Inc. is committed to hiring enrollees who complete segments of training. It is becoming apparent, as placement data are beginning to be collected, that the longer a corpsman's stay at a center, the better his chances of obtaining and retaining employment and the higher his hourly wages, as well as the lower the cost of training him. By having the companies which are

likely to hire also involved in the operations of the center, it is easier to bring home to the enrollees the importance of staying in the center. This appears to be the case with Gary, whose placement rate is 84%, which is one of the highest for the urban centers.[4]

Advisory Committees to Opportunities Industrialization Centers. The OIC movement, which started in Philadelphia in 1964 and has now spread to seventy-eight cities throughout the U.S., is basically a "self-help" training program organized and conducted by Negro leaders in their communities. While several of the first OIC training programs were funded by foundations, at the present time most of the money is provided through joint funding of the Office of Economic Opportunity, the Department of Labor, and the Department of Health, Education, and Welfare. Local businessmen also provide money, equipment, and expendable supplies.

The basic OIC "feeder program" offers literacy training, counseling, motivation, and health and welfare agency service referral. The second phase consists of vocational training in an OIC-organized school. Usually these schools are licensed as private trade schools and offer a variety of training courses. For each course there is a functioning industry advisory committee which, even prior to the opening of the school, had determined the need for the training program for the particular industry, assured that industry's support in hiring OIC graduates, and pledged financial support and donations of equipment, supplies, and instructional materials, including development of the curriculum. Dr. Arnold Nemore, writing about the Philadelphia OIC, discussed these committees:

> Industrial advisory boards, set up for each vocational area, provide continuous feedback to the program, review curriculum, advise teachers and indicate what equipment and levels of training are necessary. Representatives of management, technicians and job developers serve on these boards, which range in size from 5 to 10 persons. The industrial advisory boards have been useful tools for maintaining industrial interest and for monitoring industry needs. In spite of this, the impact of fast-changing technology on training and equipment has been a continuing problem. For example, last year OIC bought 10 machines for a power sewing class which this year are obsolete. The machine tool operation faces the same problem. Fortunately, industry has responded by donating a great deal of equipment. . . .
>
> The industrial advisory boards have been very useful in drawing potential employers to the OIC program and, when necessary, in coming up with openings for which clients have been trained. . . .

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[4] Steven Kurzman, "Private Enterprise Participation in the Anti-Poverty Program," Report of the Senate Subcommittee on Employment, Manpower, and Poverty of the Committee on Labor and Public Welfare, U.S. Senate, Volume 1 (Washington: August 1967), pp. 89-148.

> Training is probably strongest in those courses geared to specific companies and industries with a continuing and growing need for trained manpower. . . . These industries are also the most likely to provide strong industrial advisory boards, to donate modern equipment, and to help provide experienced teachers. . . .[5]

Personal observation and involvement with the Philadelphia and Washington (D.C.) OIC's have convinced the author of this chapter that much of their success is due to the support and involvement of industry and business.

Advisory Committees to Community Action Agencies and Concentrated Employment Programs. The programs discussed in this section are intertwined in terms of their funding and local operation by the Office of Economic Opportunity, the Labor Department, and the Department of Health, Education, and Welfare. According to Steven Kurzman's report:

> A common *surface participation* [italics supplied] of business in community action programs is through businessmen serving on CAA boards or councils. OEO has not furnished the number of such business members on the boards of the more than 1,100 existing CAA's, but some business representation appears to be present in a majority of cases. How meaningful that participation is, and what impact it has upon the shaping of the substantive programs of the CAA's toward further business involvement, is unknowable at this point. . . . [T]he Labor Department's new Concentrated Employment Program is testing this factor by seeking to use the CAA's in 19 cities as the focus of industrial placement and training, and the utility of some of the CAA's for this purpose has been questioned. . . .
>
> If there is an industry committee advisory to the CAA, it is mobilized to assist. If a Committee does not exist, one is formed. . . .
>
> The short experience so far indicates that the CAA's in most cities are so non-profit oriented, with such relatively stronger representation of ministers, social workers and other non-business types, that they have little rapport with the business community. Such CAA's have had to be prodded even to invite key industrial leaders to serve on their policymaking councils. And they have had to be convinced that the businessmen deserve a responsible role in the policymaking process, much as local officials have had to be prodded to give the poor a similar role in the process. Neither can be given only the role of a functionary. In some cities the CAA is unable to reach this accommodation or the business community itself is too diffuse and unorganized to be reached through a few key industrial leaders. In such cases the Bureau of Works Program (Labor Department) representative uses whatever route seems most likely to succeed. . . . Un-

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[5] Arnold Nemore, "Transferability of Manpower Programs," Report of the Senate Subcommittee on Employment, Manpower, and Poverty of the Committee on Labor and Public Welfare, U.S. Senate, Volume 2 (Washington: August 1967), pp. 199-229.

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> fortunately, there is no uniformity of technique, such as touching base systematically with all the major trade groups in a city. . . .
>
> For example, in a city where businessmen are not a particularly cohesive establishment, according to one of its businessmen who was interviewed, an attempt to establish a training program under CEP was badly misdirected in the eyes of the businessmen who were contacted. Two training centers already existed in the community funded by the Labor Department. Some of the businessmen had created a tripartite business-labor-civil rights committee which was seeking additional funds for the two centers. When the CEP was proposed by the Labor Department, the two existing centers were ignored and a third center was to be funded to train 2,500 workers in 4 weeks for $4.5 million. The local committee felt strongly that this was unrealistic because there would be no jobs for the 2,500 once they were trained. And with considerable and unusually rigorous participation for that city by the businessmen committee members, the CEP has since reportedly been modified to shift the funds into the existing centers and into longer-term programs. . . .[6]

From the above information, it is reasonable to accept Kurzman's conclusion that CAA's themselves are not generally well attuned to the local business community and may thus not be particularly effective where they are being relied upon as a route to the private sector in the Labor Department's Concentrated Employment Program.

Local Advisory Committees under the Manpower Development and Training Act. Under the MDTA of 1962, a National Manpower Advisory Committee was established and instructed to encourage and assist in the reorganization of community, state, and regional committees designed to further the purposes of the Act. The 1963 amendments to the Act gave the Secretary of Labor responsibility for these committees.

Various Manpower Administration orders and U.S. Employment Service program letters, plus a section in the 1965 MDTA Handbook issued by the Employment Service, specify in some detail how state and local advisory committees should function.

Local manpower advisory committees (MAC) consist of five to ten members who are chosen for their presumed and demonstrated vital interest in the economic welfare of a community and its citizens, and who are familiar with its area of employment opportunities and manpower problems. Local committees are expected to have the active participation of representatives of labor, management, minority groups, and the public. The primary role of the local MAC is to examine and review proposals for MDTA training, help in assessing present and future economic needs and manpower problems in the areas, and obtain cooperation from employers to hire trainees. The

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[6] Kurzman, "Private Enterprise Participation. . . ."

MAC is also expected to publicize local training programs and plans. It is not supposed to recommend consideration of specific training programs, nor act in any way but as advisory to the local Employment Service staff concerning MDTA programs and projects. There are approximately 1,400 local MAC's in existence.

During the course of a study of advisory committees established by local vocational and technical educators, the author of this chapter had occasion to investigate and discuss the operations of several local MAC's. In many respects, the functions of these committees were stated in the same general terms as the functions of vocational school advisory committees. However, there was rarely any relationship—formal or informal—between the local school and the local MDTA. On occasion, some members of the school committees were serving on MDTA committees, and to this extent there was some exchange of information. Also, vocational educators were occasionally invited to attend meetings of MDTA advisory committees. In the opinion of most vocational educators interviewed, MDTA advisory committees are not effective. Reasons given were (1) almost complete dependence of the committees on local Employment Service staff for information; (2) lack of knowledge concerning the variety of educational and training programs conducted by various other community organizations such as the schools, the OIC's, industry, and the unions; (3) infrequent meetings; (4) inadequate representation of community interests; (5) domination by union representatives; (6) inappropriate membership and lack of clear-cut understanding by members as to their functions and scope of responsibility. Informal conversations with knowledgeable Employment Service staff bear out these criticisms, and they are further reinforced by a recent, as yet unpublished, study of MDTA advisory committees by the Manpower Administration of the U.S. Department of Labor.

Industry Involvement in Other War on Poverty Programs. Industry has also been involved in such other government cooperation activities of the War on Poverty as Plans for Progress, the Urban Coalition, and the National Alliance of Businessmen.

The quiet and effective work of these organizations of concerned leaders from business, government, education, and labor to mobilize the private sector of the economy on the many fronts of the War on Poverty, is exemplified by the activities of the New York Urban Coalition. In addition to providing capital and management know-how for a number of new Negro-owned businesses in New York City, the N.Y.U.C. persuaded fifteen companies to invest $50,000 a year each to support fifteen "street academies." These academies are the out-

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growth of store-front schools established earlier by the New York Urban League to deal with the growing number of high school dropouts. Twenty-three Coalition-sponsored academies are now in operation, supported by such companies as McGraw-Hill, American Airlines, Pan-Am, IBM, Time, Inc., Celanese Corp., Sinclair Oil Co., Union Carbide, First National City Bank, Chase Manhattan Bank, Burlington Mills, and American Express. Each academy handles some thirty students—all high school dropouts—with a staff of five instructors. Hopefully, the successful techniques of these academies in working with school dropouts will be adopted by the public school system.

While the history of these programs remains to be written, there is no question but that the thousands of businessmen who participated in them recognize the need for their involvement in public school programs. The knowledge they have gained about the basic and vocational education needs of youth and adults and the problems of schools is probably one of the reasons industry has indicated a willingness to initiate cooperative relationships with the public schools (see Table 7-1 above).

Industry Involvement for Profit

Because of increased knowledge and understanding of educational and training needs and problems, industry is becoming more critical of school failures, particularly failure on the part of school administrators to accept the advice and assistance offered by industry in an effort to make education programs relevant to the needs of the target populations and to the needs of industry for skilled manpower. Such failures by many local school systems have already resulted in industry's turning to other types of institutions such as labor-management operated schools for apprentices, Opportunity Industrialization Centers conducted by minority groups in urban centers, basic education and training programs conducted by the Board for Fundamental Education, and private nonprofit and for-profit schools. The growing number of for-profit private schools currently being established by companies such as Radio Corporation of America, Philco-Ford, Graflex, Bell and Howell, Westinghouse Learning Corporation, North American Rockwell Corporation, and Ryder is a direct challenge to public vocational educators, particularly since the Vocational Education Act of 1963 and its 1968 Amendments contain provisions for public school systems to make greater utilization of private schools than they have in the past. It is of interest to note that a number of companies have entered the private school field as the result of their experiences in conducting training programs as part of the War on Poverty, and that they expect to conduct their new schools at a profit. Whether or not they can is a matter to be discovered in the coming years. We can certainly expect, however, that if they can properly educate and train people for successful employment, legislators and the public will want to compare their results and costs with those of public school vocational education and training. As industry becomes more and more involved in school programs, the educators not only will have to provide cost figures which can be substantiated, but will also have to demonstrate the inherent values and benefits of public vocational and technical education programs if the results and costs of such programs do not compare favorably with those of the private schools, particularly those being established by the prestigious national companies mentioned above.

A good example of industry's willingness to invest time and money in developing the school market for their products and services and to be held accountable for results was reported in the August 12, 1969, issue of *The Wall Street Journal*:

> Private industry is beginning to bid for a significant new place in public education—far beyond anything so humdrum as supplying textbooks, films or records.
>
> Some large education technology firms, including IBM, McGraw-Hill and RCA, are hotly seeking a small Federal contract soon to be awarded in Texarkana, Ark. It calls for a $3 million remedial education project to prevent weak students from dropping out of school. The winning bidder will use modern equipment and instruction methods to bring lagging pupils up to snuff in reading, math and other basic skills.
>
> No one will make a killing out of the Texarkana project. But success there could give the winner a convincing competitive advantage in merchandising its teaching wares elsewhere and could provide the new technology with its first major entry into the public school market. So far, many school administrators have shied away from education technology because of cost, suspicion of private industry, and concern that the new methods don't really work.
>
> The Texarkana project to discourage dropping out, one of 10 such projects to be financed by the Federal Government, is based on a concept unusual in education: Guaranteed performance. The competing bidders must promise to bring backward Texarkana students up to normal grades for their age levels at a given cost and in a given time —or else pay a money penalty.

In commenting on this innovative arrangement between industry and education, Leon Lessinger, a former Associate Commissioner for Elementary and Secondary Education of the U.S. Office of Education, stated: "Accountability for results is the basic principle; it's a profoundly new principle for education."

Lyle M. Spencer, president of Science Research Associates (a subsidiary of IBM), in speaking about his company's reasons for and experiences in operating the Rodman Job Corps Center near New Bedford, Mass., stated:

> If we, involved in the Job Corps, can indeed construct a method of successful education for teenagers with whom established methods have failed, we will have helped make a fundamental contribution with implication far beyond the Job Corps. . . . We will have learned something important about what makes youngsters want to learn. That will be a contribution in which I, for one, will be proud to have taken part, not only as one trained as a social scientist, and one who has lived his professional life on the rim of public education, but as a businessman.[7]

Spencer added that many new companies are looking at education as a business market for printed instructional materials, high-speed computers for an electronic-curriculum mix, talking-typewriters, talking-pages, etc.

A growing number of companies are also producing "hardware" and "software" for use in vocational education programs. For example, Hamilton Associates (Baltimore, Md.), a machine tool and die manufacturing company, designed a lathe and horizontal milling machine to facilitate training of disadvantaged youth as machine operators in its plant; the machine in modified form is now being marketed for use in school industrial arts and vocational education programs. The unique feature of this equipment is that it is designed specifically to meet educational objectives, whereas most other shop equipment in the schools is standard industrial equipment around which an educational program must be built. Other equipment manufacturers, particularly in the electronics field, are also studying educational objectives and designing special equipment for instructional purposes. The same is true for such companies as Xerox, Burroughs, Packard-Bell, Litton Industries, General Learning Corporation, Responsive Environments Corporation, du Pont, and 3M who are developing instructional materials for entire courses of study. The du Pont Company, for example, has invested more than $3 million in the past ten years in developing about 200 training courses which are widely used in vocational schools, in business, and in industry. Other companies are promoting and providing instructional materials built around new concepts of vocational education, as Eastman Kodak is doing for Visual Communications Education. While not new, this type of industry interest in vocational education, based on company research that a market exists for products they can develop, sets the stage for even greater industry-education cooperation based on mutual interests.

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[7] Lyle M. Spencer, "The New Social-Industrial Complex," paper presented as the Colver-Rosenbrey Lecture, University of Chicago, July 13, 1968.

The New York City school system, for example, has invited twelve corporations, pioneers in developing instructional materials, to meet with the superintendent to consider the concentrated use of the firms' materials and services to schools. "One possibility is that an entire district would try out a corporation's curriculum materials, teaching techniques and machines, and testing instruments. Particular attention will be given to the possibilities of using machines and technology with disadvantaged youth."[8]

The rapid increase in the number of companies providing new types of hardware and software for the school market has led to a movement for closer liaison between professionals in education and leaders in the education industries, initiated by the Associated Organizations for Teacher Education. Following are several problems which emerged from a meeting of the Association and company representatives in Chicago on January 22, 1969:

1. There is a need for standardization and compatibility of educational hardware and software.
2. The need for industry to show a profit is an important motive, but not their sole motive.
3. There is a great need for cooperative efforts between industry and education for field testing and evaluating products of educational technology.
4. A distinction must be made between dissemination and marketing, e.g., a refrigerator works wherever you plug it in, but this isn't true of education products which require careful specification for given teaching processes.
5. There is a need for a clearing house between education and industry.

At a subsequent meeting on February 26, 1969, recommendations were developed for cooperative action which augur well for profitable relations between the suppliers and their educational markets. Basic to this entire program is the concept that for industry to operate profitably in the field of education, it will need to provide a considerable degree of voluntary cooperation and service to educators in order to create the proper market for its products.

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[8] *Newsletter,* Center for Studies in Vocational and Technical Education, University of Wisconsin (June 1968), p. 2.

Some New Industry-Education Cooperative Programs[9]

As industry has found itself participating in the programs described above, as well as providing more and more remedial education and skill training programs for newly hired employees who in former years were considered unemployable, there has been a growing conviction that "despite the considerable support of education by industry and the American public at large, there is a growing awareness that our schools have served well a comparatively small segment of our population, have provided only a mediocre education to the great majority of our youth, and have not served at all a sizeable group of people who find themselves competitively disadvantaged in attempting to enter the mainstream of our economy."[10] This concern as to the failure of our educational system for a large segment of our population has led industry to examine more closely than ever before the problems of the schools. Buttressed with the experience of dealing with the disadvantaged in their communities and in their plants and offices, plus the knowledge gained from service on advisory committees in other War on Poverty programs, many companies and industry representatives have decided they must become involved in public school programs to a greater extent and in ways never before considered. This decision has led a number of companies to take the initiative with school people, as indicated in the following situations which, through publicity by various media, are setting a pattern for other companies:

a. The Aetna Life and Casualty Company of Hartford has "adopted" an overcrowded high school with 60 percent Negro enrollment. Company staff assist the school newspaper staff, counsel a class in photography, provide field trips to newspapers and printing plants for the printing class, and provide office machine training at the company office on Saturdays.

b. The Chase Manhattan Bank of New York City has developed a Business Experience Training program (BET) to provide meaningful work experience for high school students who are on the verge of dropping out of school. The New York City Board of Education arranged for schools with a high dropout rate to cooperate with the bank in recruiting and selecting the students. The selected students work in a variety of jobs at the bank from 2 to 5 p.m. every weekday at a rate of $1.50 per hour. The participants must continue their schooling during the morning hours and maintain a good academic record. The program runs for five months and includes, in addition to work experience, group sessions dealing with banking as a career, human relations, stocks and bonds, responsibilities of employees, etc. While no commitments are made as to employment after school graduation, many of these trainees have become full-time employees of the bank.

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[9] Samuel M. Burt and Herbert E. Striner, *Toward Greater Industry and Government Involvement in Manpower Development* (Kalamazoo, Mich.: The W. E. Upjohn Institute for Employment Research, 1968), p. 11.

[10] For additional case study reports of innovative industry education cooperation programs, see *Business and Urban Crisis*, Studies in Public Affairs No. 3 (New York: National Industrial Conference Board, Inc., 1968), and *Putting the Hard Core Unemployed to Work* (Washington: National Citizens' Committee for Community Relations, U.S. Department of Justice, 1968).

c. The Chrysler Corporation has "adopted" Northwestern High in Detroit, an inner city school. (The previous year, Michigan Bell Telephone Company "adopted" Northern High School in Detroit. A number of companies in the Bell System throughout the U.S. have "adopted" local schools.) The Chrysler program calls for practical advice on adapting high school courses such as physics, chemistry, mathematics, and drafting to the needs of industry, and for providing personal counseling of students by the company's executives. Chrysler is also providing the school with equipment from its laboratories and shops. The details of the Chrysler program, as outlined in a report from the National Association of Manufacturers, includes:

> 1. Make available for consultation and advice, appropriate specialists to work with Northwestern faculty members to review and advise on curriculum content as requested. This could involve such areas as chemistry, physics, mathematics, auto mechanics, metal shop, drafting, typing, etc.
>
> 2. Make the fullest possible use of Northwestern co-op students in typing, filing, auto mechanics, etc., to provide modest work experience wherever Chrysler vacancies can be converted into co-op placement opportunities.
>
> 3. Maintain a Chrysler Corporation "interviewing-employment" service at Northwestern to interview and place all recent graduates who are unemployed or refer them to other employers; provide "in house" experience for students to learn to cope with application forms, interview procedures; make available a continuing source of information on job availability and job requirements for counselors, teachers, and students as needed.
>
> 4. Recruit volunteer services of about 200 professional personnel who would donate one hour per week to counsel potential dropouts concerning the world of work.
>
> 5. Provide Chrysler personnel to serve as guest lecturers on a wide range of subjects.
>
> 6. A number of work-training type experiences are to be made available; e.g., conduct two six week sessions on auto mechanics for youths between their junior and senior years; conduct two similar sessions for interested youths to coach them in subjects which would assist them to pass an apprenticeship qualifying test upon graduation. This

approach aims at increasing the number of youth who could qualify for an apprentice training program in conjunction with a junior college in the area. The Chrysler Corporation's Tuition Refund Plan would finance any additional college course work leading to a degree in a related field.

7. Donate to Northwestern specialized type of equipment which would support teaching programs.
8. Work cooperatively with Northwestern faculty and administration in the testing and application of teaching techniques utilized within Chrysler Corporation as they may have application in the Northwestern program.[11]

According to the National Association of Manufacturers, the Chrysler plan gives substance to industry's commitment to the community and to the education of young people in particular. The company's services supplement the school's efforts to help students perceive the relationship between what happens in school and what awaits them in our complex technological society.

d. An entirely new approach, in terms of money involved and scope of program activities, was launched by the General Electric Company which has donated a 225,000 square foot plant valued at over $5 million to the Cleveland Board of Education for a joint school-industry job training program. At least six Cleveland industries will be asked to sublease space in the building, install production facilities, and employ students. The building is located in a high unemployment area in the city's mostly Negro east side. Its aim is to bring together basic education, industry-sponsored job training, and on-site employment facilities. The aims of the program are to:

1. Teach and/or reinforce the basics of reading, writing, and simple arithmetic needed for initial employment. Success of the program depends on the application of basic education to the work experience gained at the Center.
2. Develop necessary work skills and other attributes of employment readiness such as diligence, promptness, and good work habits and attitudes.
3. Establish a flexible curriculum that will allow trainees to enter and leave the program at their individual pace and demonstrated job readiness.
4. Provide immediate paid employment for participants upon enrollment.
5. Create a source of manpower for local industries.
6. Help end the necessity of welfare support of unemployed persons by making them employable.
7. Offer an intensive program for school dropouts and potential dropouts that unemployment of our school youth can be reduced by

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[11] National Association of Manufacturers, Urban Affairs Division, "Education—Detroit, Michigan," Action Report No. UAD-29 (New York: NAM, 1968).

developing their skills thereby enabling them to obtain and keep gainful employment.

8. Establish this type of program on a solid base of local community support and as an integral part of the Cleveland School System and qualify it for vocational education funding.

An important feature of the work is immediate paid employment upon enrollment. Industries participating will pay trainees for work performed while they learn job skills. The terms used are connected directly with the world of work so that the entire atmosphere is job related.

The program exposes participants part of the day to an environment devoted to learning what it takes to get and hold a job, covering basic reading, math and work habits and personal hygiene and habits. The rest of the day participants will be assigned to work in industry sponsored areas for on the job training.[12]

e. An example of what happens when a company and a school develop cooperative working relationships, and how such cooperation eventually redounds to the welfare of the entire community is described by the Director of Manpower Development for the Space Division of North American Rockwell Corporation, Downey, Calif.: "Working closely with the local educational community, we have established (during the last four years) 33 courses in computer technology, electronics engineering, mathematics, and other subjects at six junior colleges. In one year, 500 Division employees amassed 10,000 student hours at junior colleges, all on non-company time and all in job-related courses."[13] The collaborative procedure usually takes place when the company training staff recognizes the need for an educational program which may be of interest to the school officials as a possible course offering. The company could probably develop such a program on its own premises, utilizing its own specialist staff, but the course would simply be provided on a one-time basis for a restricted group of employees, leaving unresolved the problem of a continuing educational program for other aspiring new employees. Working together on an informal and personal basis, the company and school staff identify the educational requirements, establish a program that satisfies school requirements and the long-range opportunities of the company, formulate on-the-job performance objectives, and select course content. Before the course is initiated at the school, it is offered to employees as an in-plant program. After adjustments, based on experience, are agreed to jointly by school faculty and company staff, the school offers the course, usually in the evening, either as a certificate or associate-degree accredited program. If necessary, the company provides pre-enrolled students for the course to be taught at the school, with school credit granted for previous attendance; upon request, it also makes available qualified instructors to teach the course. Moreover, the regular school faculty are given the opportunity to become familiar with the latest technical advances by attending in-plant courses; they also are invited to teach courses to employees or to work for a short time. After the course has been offered for a period in the school, a joint evaluation is made and any necessary changes are instituted. As the course continues and the community becomes aware of its existence, with resultant requests for a full-time day school program, the school makes the necessary arrangements, including state certification, college credit, and cooperation with industry placement officers in order to move students into available jobs.

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[12] National Association of Manufacturers, Urban Affairs Division, "Education—Cleveland, Ohio," Action Report No. UAD-7 (New York: NAM, 1967).

[13] Paul B. Ryan, *Why Industry Needs the Junior College* (New York: Technical Education News, 1968), pp. 7-9.

The innovative aspects of such programs are the pre-testing of courses and instructional materials in the company before they become school programs, pre-enrollment of company employees in the school, in-plant seminars and work experience for school faculty to strengthen their technological background, and company involvement with the student to correlate his academic advancement with job progress. Such arrangements recognize the desirability of collaborating in the common mission of industry and schools for establishing a continuing program of vocational and technical education and training in order to improve the quality of the educational system, to qualify students for employment in available jobs, and to provide industry the kind of manpower it seeks in its plants and offices.

That such cooperative relationships between industry and schools are expanding is indicated in a recent report of the U.S. Department of Labor:

> Respondents from a number of plants mentioned programs conducted through the school system which were designed to meet the special skill requirements of technological change. . . . The programs were permanent, instituted to create a regular supply of graduates possessing the required skills. They took a variety of forms. Two of them, designed to supply craftsmen skilled in electronic maintenance, were revisions of the high school vocational program which had previously been conducted in the plant. In several cases, programs were developed in local community colleges to train technicians in the plant's somewhat specialized technology.
>
> One pattern was common to these situations: the initial generation of personnel required by the new technology was trained in the plant, and in-plant training programs continued to meet personnel requirements for several subsequent generations. After the skill requirements

> and methods of teaching them had been worked out in the early operation of the technology, the programs were moved out of the plant and into the schools.[14]

The report goes on the point out that there were instances when the school programs appeared to be extensions of the company's internal training activities, and that these schools were linked directly to the company's capability to adjust its staff to changing skill requirements. Herein is a danger which educators and school administrators must keep in mind when working with industry. If the school provides programs too closely linked to one or several companies in a community, the education and training provided may be too narrow to justify public school support, other than perhaps for an initial period of time. The needs of students for broad training programs in an industry or occupation must be uppermost, even in "one-industry" communities. Achieving a proper balance between a particular company's or industry's manpower needs and the objectives of public vocational and technical education must be a constant concern of vocational educators and school administrators.

f. An industry-wide program of cooperation with schools which provides this kind of balance is being conducted by the Colorado Council of the Western Electronics Manufacturers Association.[15] In 1967, a meeting of representatives of the Council, each public school offering electronic technician education and training, and the staff of the State Board for Community Colleges and Occupational Education resulted in a plan of action by the Council and the schools to strengthen the educational program for electronic technicians throughout the state. This plan included the following activities:

1. After considerable study, the Council endorsed the curriculum contained in the publication of the U.S. Office of Education, *Electronic Technology—A Suggested Two-Year Post High School Curriculum.*
2. The Council, with the assistance of a staff member of the State Board for Community Colleges and Occupational Education, devised an evaluative instrument, based on the adopted curriculum, and arranged for an evaluation of all electronic technician education programs in the state. At least three Council members served on each evaluation team.
3. The Council helped establish local occupational advisory committees for each school offering electronic technician education. At least two Council members serve on each committee.

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[14] *Workforce Adjustments in Private Industry—Their Implications for Manpower Policy,* Manpower Automation Research Monograph No. 7 (Washington: Manpower Administration, U.S. Department of Labor, October 1968), pp. 108-11.

[15] "Electronic Industry Participates in Education," report provided by L. L. Lawson, Colorado State Board for Community Colleges and Occupational Education (Denver, Colo.: undated), mimeographed.

4. The Council has prepared a career booklet for free distribution, and has organized a speakers bureau available for school-sponsored career information programs.
5. Periodic workshops for school electronics instructors and supervisors are held in Council-member plants to help update knowledge and skills of the instructors.
6. Summer employment has been made available in Council-member plants for all school electronic instructors desiring such employment.
7. Equipment and supplies are made available by Council-member companies on a free or loan basis through the advisory committees of the local schools.

As the result of this pervasive industry-education cooperative program, Colorado schools have added courses in technical report writing, technical mathematics, and electronic drawing. Other improvements have resulted in strengthening the electronic technician training programs of the schools. The industry is committed to assisting the schools in developing the best possible programs in electronics and also to the employment of the graduates of the programs. So successful has been this joint effort that the other state councils of the Western Electronics Manufacturers Association are becoming involved in similar programs in their areas.

g. Other local, regional, and national trade and professional associations and, to a lesser degree, labor organizations, are becoming or have been engaged in industry-education cooperative programs along the same lines as the Colorado Council of WEMA. Some of the leading programs are those conducted by the National Restaurant Association (Chicago), the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, the Education Council of the Graphic Arts Industry (Pittsburgh), and the National Tool, Die and Precision Machining Association (Washington, D.C.).[16] The prime motivating factor is concern about the numbers and quality of new employees entering the industry and the need for upgrading the skills of apprentices and journeymen; a common operational denominator is the employment of full-time educational directors who report to a special educational committee of members of the organization.

An example of national industry and professional association involvement in vocational education is the Association for Advancement of Medical Instrumentation, formed in 1966 to organize interest of the manufacturers in supporting development of curricula for biomedical equipment technicians working primarily in hospitals. The AAMI received its initial impetus from work being done by the

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[16] Burt, *Industry and Vocational-Technical Education.*

Technical Education Research Center (Cambridge, Mass.) with a grant from USOE to develop a technical education program in the field of biomedical equipment and instrumentation technology. The AAMI has succeeded in having its industry members produce and provide training literature and donate some $100,000 in equipment to several junior colleges involved in the TERC project. The manufacturers recognize that until and unless the hospitals have a continuing supply of trained technicians, their equipment sales will be at a minimum.

All equipment donated by the manufacturers is turned over to AAMI for loan or contribution to selected schools, thus freeing individual companies from deciding whether or not to support some local educational institution which may not have a program worthy of industry support. AAMI, whose membership consists of both equipment manufacturers and hospitals, has a long range program for industry support of educational institutions, including supplying industry staff to assist school instructors.

A number of labor unions, together with management, have established skill-training schools for their members in several cities. These schools are by far better equipped and financed than public vocational schools offering training for those industries supporting their own training centers. However, even these industries are involved in public school programs in order to enlist the aid of school people in presenting the particular industry's career opportunities to youth while still in school and, if the schools are offering educational and training programs connected with that industry, to help improve the courses so that the graduates will have the kind of educational and training background the industry considers desirable. More and more employers are now paying a higher entry wage for vocational course graduates in recognition of the value of school training where industry has participated in the development and evaluation of the school program. Such industry-education cooperation is excellent, so long as industry does not demand that the schools expend an inordinate amount of money for shop equipment and supplies for that part of the training which can and should be provided on the job, either while the trainees are in school or after full-time employment.

Organizations for Sponsoring General Industry-Education Cooperation

While many individuals, companies, labor, trade, and professional organizations have and are involving themselves in school programs, one of the phenomena of the 1960s has been the slowly growing movement of community, regional, and state organizations devoted to fostering industry-education cooperation. The National Association for Industry-Education Cooperation regularly carries news of programs and activities of its chapters and affiliates. For example, a recent issue of its *Newsletter* reported on the activities of its affiliated New York Regional Council, the Washington (D.C.) Chapter, the Arizona Council, and the Northern California Industry-Education Council. It was also reported that Puerto Rico was in the process of establishing a chapter. Among other news items was the report that

> Philadelphia plans a bold partnership. A new 2400 student downtown high school will have no plant. Classrooms will be held in downtown business and community buildings. This will not only save $19 million for a new high school building, but will also dramatize the fact that the schools are the community and the community the schools.[17]

The newsletters and annual reports of both the Northern and the Southern California Industry-Education Councils are veritable goldmines of information concerning industry-education cooperative activities. For example, the August 1968 *Newsletter* carried the following stories:

1. Career Exploration program—Some 100 students from fifty high schools in the Contra Costa County area spent six weeks on nonpaying jobs in business, professional, or industrial establishments in order to correlate educational and vocational experiences in terms of career selections.
2. Science Fair—sponsored by industry and the schools in Santa Clara Valley.
3. Scheduling of a symposium on "Education for Employment."
4. Conduct of a symposium for 200 students from San Mateo Union High School District and the Sequoia Union High School District on "Preparation for the World of Work."
5. Initiation of a cooperative work-study program for students at the College of San Mateo. About eighty-five companies are involved in the program of alternate semesters of work and school attendance.
6. Conduct of a two-day science seminar for teachers and students in San Francisco sponsored by NCIEC and hosted by the Pacific Gas and Electric Company and the Thomas Alva Edison Foundation.

Some 130 business organizations and associations and ninety schools and school districts are dues-paying members of the NCIEC. Eleven local affiliated councils with their own membership structures look to the NCIEC for guidance and coordination in developing their programs in industry-education cooperation.

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[17] *Newsletter,* National Association for Industry-Education Cooperation (New York: September 1968), mimeographed, p. 2.

The objectives of the NCIEC, as stated in its 1967-68 annual report, are:

> It recognizes the complete inter-dependence of education and industry. It obtains its leadership equally from education and the entire community. . . . It recognizes that unless the dividedness which exists can be eliminated and mutual respect, confidence and cooperation can be established, we shall be wasting the greatest resource available to all of us—the trained manpower and leadership which is essential to our country and the world.[18]

The NCIEC recently received a two-year grant from the Rosenberg Foundation to employ staff, to expand services, and to stimulate business organizations to recognize the benefits available to them through cooperation and, thus, to obtain not only their financial support, but their actual participation and involvement.[19]

A major factor in the growth of the NCIEC, as well as the Southern California Industry-Education Council, has been the appointment of full-time industry relations coordinators by a growing number of school districts and junior colleges. As stated in the NCIEC 1967-68 annual report:

> Experience has clearly demonstrated that a successful affiliate must have sufficient staff time available to keep the organization functioning. In the [geographic] areas that have been most successful the necessary personnel has been provided by the County Superintendent of Schools Office. This has proved to be most appropriate since coordination of educational activities has become a recognized prime function of the County Office.[20]

It should be noted here, even though partially out of context, that the appointment of industry-education coordinators by schools and school systems (discussed more fully later in this chapter) is being paralleled by the employment of increasing numbers of company and union educational liaison staff people. Companies such as Detroit-Edison, IBM, RCA, Standard Oil of California, and Chrysler have placed education liaison staff personnel at fairly high levels in their corporate structures; other companies have assigned the school liaison responsibility to their industrial relations, community relations, or personnel departments. Companies such as General Electric and U.S. Steel also obtain advice regarding educational programs which they should initiate or be involved in from public relations firms which maintain school relationships departments.

Unions are also employing, at an ever increasing pace, coordinators for their local joint apprenticeship committees. These coordinators are responsible for administering the apprenticeship programs, which include apprentice-related training provided by public schools. They are expanding their activities to include working with school counselors and school industry coordinators in recruiting students and improving trade training programs. It can be expected that as both the company and union coordinators become sophisticated in their jobs (many of the company people are former educators, incidentally), their self-interest will dictate more and more participation by themselves and their organizations in school activities, particularly in those vocational education programs which are served by school industry-education coordinators.

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[18] *Summary 1967-68,* Northern California Industry-Education Council (San Francisco, Calif.: 1968), p. 1.

[19] Ibid., p. 4.

[20] Ibid., p. 4.

Economic Development Factors Leading to Industry-Education Relationships

In the selection of sites for new plants, industrial and economic developers, management consultants, and industrial organizations are currently giving greater attention to the human aspects of economic development programs, including the quality and educational level of the community labor force and available facilities for providing training. No longer are industrialists assuming that, somehow or other, manpower will be available when the plant is ready to hire employees. According to a recent study reported by the American Industrial Development Council, a 1968 San Francisco Chamber of Commerce survey disclosed that 58 percent of the respondents anticipated difficulty in securing qualified people in the future.[21] Other surveys were cited which indicated that labor supply and vocational-technical education facilities are now a major concern of industrial development and plant location people. In another study of factors influencing 206 companies to locate new plants in Colorado, New Mexico, Arizona, Nevada, Idaho, Utah, and Wyoming since 1960, it was found that approximately 25 percent of the respondents actually visited vocational schools when considering the selection of their plant sites.[22]

The great importance being attached to labor supply and available vocational education facilities by industry seeking new plant sites has caused local and state economic developers to become involved in the vocational and technical education programs in their communities and the state. Special committees of businessmen, government agency staff, legislators, and educators have been formed in a number of communities to evaluate vocational education facilities to determine what must be done to improve them and their programs in order to attract new industries. As the members of these committees become knowledgeable about the schools, they realize the role they must play in assisting the educators to develop a vocational and technical education system to implement the economic and industrial plans on which they are working. This assistance has come to include not only traditional types of involvement with local vocational schools and community junior colleges, but also the drawing-up of regional and state plans for expanded programs and appearances before legislative bodies to obtain the necessary funds. Expansion of technical education school facilities in South Carolina is a direct result of such industry involvement, and it is claimed that a majority of the new companies which have located in that state during the last five years have been attracted primarily by the excellence of the eleven technical institutes established in the past few years. These technical institutes are so organized as to be extremely sensitive to the educational and training needs of industry in their geographic service area, as well as to new industries planning or actually locating in the area. Industry is heavily represented on their boards of trustees, and industry-advisory committees are operating for each of the program offerings. A number of other states are studying South Carolina's program because of its unique capability to respond almost immediately to changing demands of industry manpower requirements.

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[21] Louis K. Lowenstein, "New Factors and Facets of Industrial Location," *A.I.D.C. Journal* (July 1968).

[22] Ernest H. Dean, "Implications of Vocational Education for Plant Site Location," (Washington: U.S. Office of Education, May 31, 1967), (Grant No. 4-7-068-0408).

Arkansas, which has currently involved over 200 industry and government agency representatives in evaluating its vocational and technical education system, plans to adapt some of the features of the South Carolina program. The Arkansas project is unique in its own way in that the evaluations are being conducted by the industry people themselves, serving on eight regional Manpower Advisory Councils for Economic Development, coordinated by a state council. The study is being conducted by the Industrial Research and Extension Center of the University of Arkansas. Professional educators are serving in an advisory and consultative capacity rather than, as is the usual practice, conducting the study and using industry people for advice. Industry responded quickly to the invitation of the University of Arkansas to conduct the study because of its desire to improve the economic development of the state.[23]

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[23] Samuel M. Burt, "Use of Industry-Advisory Committees as a Technique for Evaluating Vocational and Technical Education Programs" (Kalamazoo, Mich.: The W. E. Upjohn Institute for Employment Research, October 1968).

Other vocational education researchers are experimenting with the use of industry advisory committees to evaluate vocational and technical education programs in local communities and regional areas in somewhat the same manner as in Arkansas.[24] They will find these industry committees function most effectively when provided direction and background information by staff assigned to them by the sponsoring organization. The committees will also require guidelines for conducting their evaluations. The industry committees will want to examine comparative costs and results of programs similar to the way they evaluate their own businesses with balance sheets and profit-and-loss statements. As indicated in another section of this chapter, they will want to know whether private schools can perform some programs more effectively and efficiently than the public schools. Educators and school administrators will have to reorient their record keeping and cost accounting systems to provide this kind of information. They will also have to justify the comparative benefits and costs of the various types of occupational education program offerings (industrial arts, vocational education, and technical education) in terms of benefits both to the students and to industry's manpower needs. They will have to demonstrate to industry people that they are utilizing all available community, regional, state, and federal funds and sources of information, as well as all the public and private education and training facilities in the community, so that duplication of facilities and programs will be kept at a minimum. Industry will also want to examine long- and short-range plans of the vocational educators to ascertain how they fit into and complement the industrial and economic plans of their communities and regional areas.

Such interest in school matters by industry may deter some school administrators from inviting industry to cooperate in school programs. This would be a mistake. Whether or not the educators invite industry people into the schools, industry is already asking these questions and seeking the answers. State and federal legislators are also seeking such information as they are pressured for the appropriation of ever greater sums of money for vocational and technical education. The demand for "the facts" is built into a number of provisions of the 1968 Amendments to the Vocational Education Act of 1963. They call for greater industry involvement, particularly in evaluating programs, than did any previous legislation dealing with federally reimbursed vocational and technical education programs. If vocational educators expect to continue to receive federal funds, it would be wise for them to involve industry on their own initiative, rather than having involvement imposed upon them. The former strategy can develop constructive cooperation based on mutually understood and accepted objectives of vocational education as part and parcel of the economy and its growth and welfare. The latter procedure will only generate defensive attitudes, suspicion, and criticism on the part of all concerned.

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[24] Ibid.

The Role of the Educators

That full-time school personnel assigned the responsibility for industry liaison are the key and the only realistic means for schools to initiate and maintain industry-education cooperation in vocational and technical education programs was the conclusion reached by the author of this chapter in his recently published study of industry involvement in vocational and technical education.[25] Without such staff, industry participation in a school or school system will never be more than a "sometime thing," as it has been for many years in most schools. Despite the considerable literature in education journals and special reports pointing out the values and benefits of industry-education cooperation over the last fifty years, too few schools have in fact achieved such cooperation on a consistent and long-term basis. The major reason, in the opinion of many authorities, is the failure of the schools to recognize that if they are to invite formal industry participation, somebody has to do the inviting, to organize and conduct the meetings, to supervise and administer the cooperative activities, to follow-up on recommended actions, to write letters and reports, to make telephone calls, and so on. Even when such responsibilities are conducted informally and on a part-time basis by a number of the school staff, lack of coordination and planning results in little effective cooperation with industry and eventually deteriorates into no activity at all.

A number of recent studies concerning the use of industry advisory committees and the general strategy for obtaining industry participation and involvement by vocational schools, technical institutes, and colleges, indicates that many have yet to put into practice the accepted concepts, much less any of the innovative techniques described in this chapter. Richard L. Bums found that only a little over one-half of 273 area vocational directors attempted to obtain industry support of their school programs.[26] In another recent study

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[25] Burt, *Industry and Vocational-Technical Education,* Chapter 14, "The Industry Program Coordinator," pp. 442-62.

[26] Richard L. Bums, "Guidelines for Establishing Area Vocational-Technical Schools and Programs," *School Shop* (May 1966), pp. 23-25.

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of vocational education—in West Virginia—it was reported that:

> In some areas there were no active advisory committees. In every case, the employers were willing to serve either personally or assign a member of their business to serve. No one refused. In fact everyone interviewed thought that one of the best ways to keep curricula and physical facilities and equipment up-to-date was through the use of advisory committees.[27]

The report went on to recommend the organization of industry-education advisory committees for each of the fifty-five counties with ties to the State Advisory Council.

A 1967 study of vocational education in Pennsylvania found:

> Except in rare instances, the use of advisory committees cannot be cited as exemplary. . . . In general, it was noted that they did not exist. Where they were established, it was found that few meetings were held, that they lacked representation from large employers and from local labor organizations, and that there was a substantial decline in the use of craft (specific) type committees. Even more alarming was the tendency to start new programs with utter disregard for the organization of advisory committees.[28]

Yet every leading vocational educator, and most publications dealing with vocational and technical education produced by the American Vocational Association, the American Association of Junior Colleges, and the U.S. Office of Education, urge vocational school officials to initiate action to enlist the support of business, industry, and labor in helping design, conduct, and evaluate vocational and technical education. For example, a report on rural community junior colleges issued late in 1968 by the American Association of Junior Colleges devotes almost four pages to the organization of local industry-education advisory committees.[29] The AAJC has also recently published a booklet on the use of advisory committees in junior colleges.[30] In its recently published booklet on technical education the U.S. Office of Education devotes several pages to the utilization of industry advisory committees,[31] as it does in most of its curriculum guides for specific occupational education programs.

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[27] *Vocational, Technical and Adult Education, West Virginia Legislative Study, 1968* (Charleston, W. Va.: West Virginia State Department of Education), p. 216.

[28] Jacob J. Kaufman and others, *The Role of the Secondary Schools in the Preparation of Youth for Employment* (University Park, Penna.: Institute for Research on Human Resources, Pennsylvania State University, 1967), pp. 4-19.

[29] *100,000 and Under* (Washington: American Association of Junior Colleges, 1968), pp. 17, 18, 19, & 25.

[30] Albert J. Riendeau, *The Role of the Advisory Committee in Occupational Education* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1967).

[31] *Criteria for Technical Education* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968), pp. 18-20.

Many concerned school administrators have found that the missing link in forging an industry-education cooperative program is the industry program coordinator. As soon as they employed or assigned a full-time staff member for this purpose, industry involvement and support in the school became a way of life for the entire school.

Since the passage of the Vocational Education Act of 1963, which provides for up to 50 percent of federal reimbursement for all types of coordinators dealing with industry (Distributive Education Instructor-Coordinators, Cooperative Work-Study Coordinators, et al.) more and more schools are utilizing coordinators for general industry liaison. Wisconsin is a good example, with an estimated 4,000 industry representatives serving on state and local advisory committees for vocational and technical institutes, most of which have one or more staff members as industry coordinators.

The Ventura County school system (California), in a most enlightening report, describes its successful industry-education relations which developed only after the appointment in 1964 of a Coordinator of Vocational Education in the superintendent's office. Over 125 industry representatives are currently serving on the Ventura County Vocational Resource Committee organized and staffed by this coordinator.[32]

Another major deterrent to effective utilization of industry, particularly through the medium of advisory committees, is the fact that the term "advisory" is a misnomer. Even the brief description in the previous pages of this chapter demonstrate that industry involvement in the schools goes far beyond the advisory function. Educators, however, fearing that "outsiders" might want to interfere in the day-by-day operations and administration of school affairs, continually admonish industry committees that they are advisory only—and then go on to ask for and obtain all kinds of cooperation which go far beyond mere seeking of advice. The more than thirty specific cooperative activities, listed below, which have been identified as being provided by these committees, when requested by educators, should be sufficient to dispel the myth of "advisory" and cause educators to start thinking, talking, writing, and operating with "industry-education cooperating committees."[33] Since educators are responsible for administering school programs, obtaining industry involvement and participation in these programs is also their responsibility.

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[32] *Ventura County's Vocational Resources Committee* (Ventura County, Calif.: Superintendent of Schools, 1969), 18 pages, mimeographed.

[33] Samuel M. Burt, *Volunteers in Vocational Education—The Advisory Committee Member* (Kalamazoo, Mich.: The W. E. Upjohn Institute for Employment Research, 1969).

Specific Services Provided by Industry-Education Cooperating Committees

A. Assisting in student recruitment, selection, and placement.
   1. Encouraging young people (and parents) to consider vocational and technical education and training through visits to "feeder schools," speeches to civic clubs, career day meetings, etc.
   2. Assisting in the screening of students applying for admission to specific programs.
   3. Participating in the development of aptitude tests for selection of students for specific programs.
   4. Providing information concerning desirable aptitudes and the educational and experience backgrounds which applicants for entry-level jobs in specific industries should have.
   5. Arranging plant or field trip visits for counselors and students.
   6. Providing free guidance literature to schools concerning specific industries.
   7. Assisting in the development of aptitude tests, achievement tests, and certification and licensing examinations related to initial employment of graduates.
   8. Placing and hiring students in part-time work as part of cooperative programs and in summer vacation jobs.
   9. Placing and hiring school graduates in full-time jobs.

B. Assisting in instructional programs.
   1. Assisting in the preparation and review of budget requests for laboratory and shop equipment and supplies.
   2. Assisting in the development and review of course content to assure its currency in meeting the changing skill and knowledge needs of industry.
   3. Evaluating physical conditions, adequacy of equipment, and layout of laboratories and shops.
   4. Obtaining needed school equipment and supplies on loan, as gifts, or at special prices.
   5. Assisting in the establishment of standards of proficiency to be met by students.
   6. Assisting in the development of school policy concerning the kinds and volume of production work or "live jobs" to be produced by students so that this work will be of instructional value in the educational program.

7. Establishing and maintaining a library of visual aids, magazines, and books concerning industry.
8. Assisting in the development of special programs under MDTA and the Economic Opportunity Act.
9. Assisting in the development of evening school skill improvement and technical courses for employed personnel.
10. Assisting in making arrangements for apprenticeship or on-the-job training related courses.

C. Teacher assistance.
   1. Providing funds to assist local teachers to attend regional and national meetings of industry and teachers organizations.
   2. Arranging meetings of teachers to establish cooperative relationships between the schools and industry.
   3. Arranging summer employment for teachers.
   4. Assisting in the establishment of teacher qualification requirements.
   5. Conducting clinics and in-service training programs for teachers.
   6. Arranging for substitute or resource instructors from industry to assist regular teachers.
   7. Subsidizing teacher salaries in such unusual cases as may be necessary to obtain qualified instructors.

D. Student recognition.
   1. Providing scholarships and other financial assistance for outstanding graduates who wish to continue their education and training in technical institutes, teacher-training institutions, and other institutions of higher learning.
   2. Providing prizes to outstanding students.

E. Public relations.
   1. Providing speakers to address trade and civic groups concerning the industry's education and training program in the schools.
   2. Providing news stories concerning the school program to magazines published for specific industry groups.
   3. Providing news stories concerning the school program to local news media.
   4. Attending meetings in support of vocational and technical education which may be called by local and state school officials, boards, and legislative groups.

Advisory Councils and Industry Involvement: Provisions of the 1968 Amendments to the Vocational Education Act of 1963[34]

With the enactment of the 1968 Amendments to the Vocational Education Act of 1963, plus legislation already in existence in many states (including the rules and regulations issued by state departments of education),[35] educators are mandated as never before to utilize representatives of industry, business, agriculture, and the professions in the conduct of vocational and technical education programs. This mandate not only calls for involvement and advice by industry concerning initiation and conduct of vocational and technical education programs and courses at the local, state, and national levels, but also requires that State Advisory Councils and a National Advisory Council be organized to engage in a number of specific activities relating to the continuous planning, evaluating, and reporting on the status and direction of vocational and technical education in each state and in the nation.

The new law contains so many references to both advisory councils and to industry involvement that vocational and technical educators at the federal and state levels will find it necessary to reorient themselves completely away from the traditional "suggestions" in previous legislation to the new "mandates." A study of these provisions will provide the basis for determining new patterns of organizational structure and relationships for industry cooperation at all levels, in order to assure that the intent of Congress is carried out in making full and effective use of the volunteer services of advisory council members.

While P. L. 90-576 makes no mention of local advisory councils and committees, it can be anticipated that implementation of the law will result in the development of new types of relationships by vocational educators with representatives of industry and other segments of the public serving on local school advisory committees. At the present time it is estimated there are some 20,000 local advisory committees for vocational and technical education, involving over 100,000 representatives of industry and education. The new State Advisory Councils and the National Council will add fifty-one committees and more than 600 new people to the field. When first introduced into Congress, the bill which finally became law was aptly described as developing a new "partnership for learning and earning." Since no facet of our nation's educational system has the built-in provision for industry and community leadership involvement as does vocational and technical education, it can be expected that vocational educators will be looked to for leadership by the entire educational system in developing community participation in the programs and in solving the problems of all our schools.

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[34] For a detailed analysis of state advisory councils on vocational education and industry involvement provisions of P. L. 90-576, see Samuel M. Burt, *Industry and Community Leaders in Education—The State Advisory Councils on Vocational Education* (Kalamazoo, Mich.: The W. E. Upjohn Institute for Employment Research, 1969).

[35] Samuel M. Burt, *Industry and Vocational-Technical Education*, Chapter 10.

The National Advisory Council on Vocational Education

Title 1, Part A, Section 104(a) contains practically all the provisions dealing with the National Council. The twenty-one members to be appointed to the Council by the President of the United States "shall include persons representative of labor and management, including persons who have knowledge of the semiskilled, skilled and technical employment in such occupational fields as agriculture, home economics, distribution and marketing, health, trades, manufacturing, office and service industries, and persons representative of new and emerging occupational fields." Six other categories of representation are included, such as the general public, local school boards, vocational and technical education, etc.

The National Council must meet at least four times a year to:

> (a) advise the Commissioner [of Education] concerning the administration of, preparation of general regulations for, and operation of vocational education programs. . . .
> (b) review the administration and operation of vocational education programs . . . including the effectiveness of such programs in meeting the purposes for which they are established and operated, make recommendations with respect thereto, and make annual reports of its findings and recommendations . . . to the Secretary [of the Department of Health, Education and Welfare] for transmittal to the Congress. . . .
> (c) conduct independent evaluations of programs carried out under this title and publish and distribute the results thereof.

Additional provisions of this Section call for compensation of travel expenses of Council members, per diem, and a fee of up to $100 per day while engaged in Council business. The Council is also to "review the possible duplication of vocational education programs at the post-secondary and adult levels within geographic areas, and shall make annual reports of the extent to which such duplication exists, together with its findings and recommendations to the Secretary [of Health, Education, and Welfare]." In making these reports, the Council is to seek opinions of knowledgeable representatives of educational organizations, as well as from "persons familiar with . . . labor, business, and industry. . . ."

In another section of the law (Title 1, Part I, Section 191, (c), (1)) dealing with curriculum development, the U.S. Commissioner of Education is required to consult with appropriate state agencies and the National Council before making grants to institutions or organizations for the development of curricula and curriculum materials.

To permit the National Advisory Council on Vocational Education to conduct the above described programs, and to engage in such official relationships with state agencies as may be required, Section 104(a)(4) authorizes the Council "to engage such technical assistance as may be required to carry out its functions." For this purpose $100,000 was authorized for fiscal year ending June 30, 1969, and $150,000 for each of the succeeding three years. Such technical assistance may well be interpreted to include a full-time executive director and clerical assistance for the National Council. As a matter of fact, it is this writer's opinion that without its own full-time staff, the National Council could easily become a "creature" of the U.S. Office of Education instead of an independent observer and evaluator, as apparently was the intent of Congress.

State Advisory Councils on Vocational Education

Any state desiring to receive funds under the provisions of P. L. 90-576 must establish a State Advisory Council on Vocational Education, which must include as members a person or persons "familiar with the vocational needs and the problems of management and labor in the state, and a person or persons representing state industrial and economic development agencies. . . ." Among the major provisions dealing with State Advisory Councils (Title 1, Part A, Section 104(b)) is the membership composition of the Council, which is to consist of at least twelve members to be appointed by the Governors (or if the State Board of Vocational Education is elected, by the Board) by no later than March 31, 1969. The functions of the Council are described as follows:

> (a) advise the State Board on the development of and policy matters arising in the administration of the State plan for vocational and technical education, both long-range and annual, which is to be submitted by the State Board to the U.S. Office of Education.
> (b) evaluate vocational education programs, services and activities.
> (c) prepare and submit through the State Board to the U.S. Commissioner of Education and to the National Advisory Council on Vocational Education an annual evaluation report of the effectiveness of vocational and technical education, with recommendations for such changes in programs, services and activities as may be warranted.

Just as the law provides for the employment of technical services and assistance by the National Council, so is such provision made for State Councils. However, the language for the State Councils goes further by authorizing "the services of such professional, technical and clerical personnel as may be necessary to enable them to carry out their functions . . . and to contract for such services as may be necessary to enable them to carry out their evaluation functions." The amount of money provided for such staff and contractual responsibilities is a minimum of $50,000 and a maximum of $150,000 per year. There is no authorization for payment of travel expenses, per diem, or fees to members of State Advisory Councils while engaged in Council business, although it can be interpreted that such payments can be made from the Council's operating funds. It may also be possible to pay such costs in accordance with existing state laws concerning other state advisory committees.

There is an interesting provision (Section 104(b) (31)) that requires State Councils to hold at least one meeting each year "at which the public is given opportunity to express views concerning vocational education." It is also interesting to note that while the Act specifies the terms of office for the members of the National Advisory Council, there is no such specification for the members of the State Advisory Councils.

Title 1, Part A, Section 123(a) of the law requires that the State Plan submitted by the State Board of Vocational Education requesting federal funds must:

> (1) have been prepared in consultation with the state Advisory Council on Vocational Education,
> (2) set forth both a long-range plan (three to five years), and an annual plan for vocational education in the State which has been prepared in consultation with the State Advisory Council.

The long-range program plan section of the State Plan must describe the present and projected vocational education needs of the state and set forth "a program of vocational education objectives which affords satisfactory assurance of substantial progress toward meeting the vocational education needs of the potential students in the State." The annual plan "describes the content of, and allocation of federal and state vocational education funds to programs, services, and activities to be carried out under the State Plan during the year for which federal funds are sought (whether or not supported by federal funds. . . .)," indicates how and to what extent allocations of federal funds allotted to the state take into consideration the criteria set forth in the State Plan, and specifies "the extent to which consideration was given to the findings and recommendations of the State Advisory Council in its most recent evaluation report. . . ."

The State Advisory Councils are involved in research and demonstration projects, as indicated in Title 1, Part C, Section 131 (b) (2) in that they are empowered to recommend research and demonstration projects for which grants are to be made by the state to "colleges and universities, and other public or nonprofit agencies and institutions, and local educational agencies and contracts with private agencies, organizations and institutions." The state can pay "90 per centum of the costs of programs and projects for (i) research and training programs, (ii) experimental, developmental, or pilot programs developed by such institutions and agencies and designed to meet the special vocational needs of youths, particularly youths in economically depressed communities who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocational education programs, and (iii) the dissemination of information derived from the foregoing programs or from research and demonstrations in the field of vocational education. . . ." It should be noted that this provision not only involves the State Advisory Councils, but also permits contracting by State Boards of Vocational Education (or the State Department of Education) with private agencies, organizations, and institutions to conduct research and demonstration projects.

The above provisions of the new law describing the functions and responsibilities of the Councils indicate the extent to which industry people (as well as the other members of the Councils who are not professional educators) must become intimately acquainted, thoroughly knowledgeable, and involved with vocational and technical education programs and problems, particularly at the local, regional, and state levels.

Other Industry Involvement Provisions of P. L. 90-576

P. L. 90-576 calls for industry involvement in vocational and technical education in a number of meaningful ways in addition to service on the State and National Advisory Councils. The section dealing with State Plans states that in developing any plans for vocational educational programs, due consideration must be given to current and projected manpower needs and opportunities at the local, state, and national levels (Sec. 123 (a) 6(A)). Of course, either school people or the Employment Service must obtain such information from employers for use by the educational planners. In addition to obtaining the information through the Employment Service, cooperative arrangements may be made with "other agencies, organizations and institutions concerned with manpower needs and job opportunities such as institutions of higher education, and model city, business, labor and community action organizations."

The section of the law dealing with research (Title 1, Part C), as indicated above, provides for research and demonstration projects to be conducted by private agencies, organizations, and institutions under contracts to be granted by the State Board. The monies for such contracts are to come from the 50 percentum of the research funds appropriated for use by the states and not under the jurisdiction of the U.S. Office of Education. These latter funds may not be used for contracting with for-profit organizations, but such restriction is not imposed on research grants made by the states.

In the section of the law dealing with curriculum development (Title 1, Part I, Section 191(c) (1)), the U.S. Commissioner of Education, after consultation with the appropriate state agencies and the National Advisory Council, may make contracts with public or private agencies, organizations, or institutions—

> (A) to promote the development and dissemination of vocational education curriculum materials for use in teaching occupational subjects, including curriculums for new and changing occupational fields;
> (B) to develop standards for curriculum development in all occupational fields;
> (C) to coordinate efforts of the States in the preparation of curriculum materials available in all occupational fields;
> (D) to survey curriculum materials produced by other agencies of Government, including the Department of Defense;
> (E) to evaluate vocational-technical education curriculum materials and their uses; and
> (F) to train personnel in curriculum development.
> 2. For purposes of this subsection, "curriculum materials" means materials consisting of a series of courses to cover instruction in any occupational field in vocational education which are designed to prepare persons for employment at the entry level or to upgrade occupational competencies of those previously or presently employed in any occupational field.

This one provision of P. L. 90-576 is seen as inviting private for-profit education research organizations and companies engaged in producing "hardware" and/or "software" for use in vocational and technical education to contract with the U.S. Office of Education in developing and producing courses of study, instructional materials, and evaluating their use.

In the section of the law dealing with Exemplary Programs and Projects (Title 1, Part D) there is a provision permitting State Boards to make grants and contracts with "public or private agencies, organizations or institutions including business and industrial concerns" to develop, establish, and operate "exemplary and innovative occupational education programs or projects designed to serve as models for use in vocational education programs (Section 142(d)). Furthermore, such programs may include "exchanges of personnel between schools and other agencies . . . including manpower agencies and industry" (Section 143(a)(2)(EE)).

Among the unique provisions of P. L. 90-576 is Title 1, Part G which deals with Cooperative Vocational Education Programs. For the first time in federal legislation dealing with vocational education, employers can be reimbursed "when necessary for certain added costs incurred in providing on-the-job training through work experience" (Section 171). The State Plan, prepared in consultation with the State Advisory Council, must include the "policies and procedures to be used by the State Board in establishing cooperative work-study programs through local educational agencies with participation of public and private employers" (Section 173(a)). Assurance must be given that procedures are established for cooperation with employers and other community groups in identifying suitable jobs for persons who enroll in cooperative work-study programs, and that reimbursement of added costs are made to employers for on-the-job training which is related to "existing career opportunities susceptible of promotion and advancement and does not displace other workers who perform such work" (Section 173(a)(3)).

The section of the law dealing with opportunities for experienced vocational educators to develop their professional leadership abilities and to up-date their occupational competencies (Title 2, Part F, Section 551) provides for "exchanges of personnel between vocational education programs and commercial, industrial, or other public or private employment." Grants can be authorized by the U.S. Commissioner of Education to State Boards (Section 553(b)(1)) to pay the costs of cooperative arrangements for projects and activities such as:

> exchange of vocational education teachers and other staff members with skilled technicians or supervisors in industry (including mutual arrangements for preserving employment and retirement status, and other employment benefits during the period of exchange), and the development and operation of cooperative programs involving periods of teaching in schools providing vocational education and experience in commercial, industrial, or other public or private employment related to the subject matter taught in such schools.

In recognition of the growing importance and the potential inherent in private trade schools as a facet of the nation's manpower development program, Section 122(a)(7) of P. L. 90-576 authorizes the use of federal funds by states for:

> provision of vocational training with private vocational training insti-

> tutions where such private institutions can make a significant contribution to attaining the objectives of the State Plan, and can provide substantially equivalent training at lesser cost, or can provide equipment or services not available in public institutions.

The Nixon Administration's new Comprehensive Manpower Act, submitted to Congress early in August 1969, also provides for the use of private trade schools for conducting education and training. As a result of this Congressional concern for the utilization of private schools, it can be expected that such schools will play an increasingly important role in education, training, and manpower development, and in many communities and states may seriously compete for public funds with the public vocational and technical education programs.[36]

A section of P. L. 90-576 (Title 1, Part A, Section 108(11)) requires the formation by the Commissioner of Education of a special national advisory committee to accredit private vocational training institutions in the event there is no nationally recognized or state agency or association qualified to evaluate the school(s). The only requirement for membership on this committee is "persons qualified to evaluate training provided by schools of that category," which could very well mean industry people.

Among the Miscellaneous Provisions of the new law (Title 3), there is a section (Section 303(a)(3)) dealing with the collection and dissemination of information in which the U.S. Commissioner of Education is directed to "develop, on both formal and informal bases, a close liaison for interchange of ideas and information with representatives of American business and with service, labor or other organizations, both public and private, to advance American education." The use of the word "formal" in this provision implies appointment of some form of advisory committee or committees.

The same section authorizes the U.S. Commissioner of Education to "enter into contracts with public or private agencies, organizations, groups, or individuals to carry out the provisions of this section." The other provisions of the section, not previously discussed, involve:

> (1) preparation and dissemination of complete information on programs of federal assistance to education for distribution to educators and the general public;
> (2) collection of data on programs for the purpose of obtaining objective information for evaluating these programs;
> (3) providing advice, counsel, technical assistance, and demonstra-

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[36] A. Harvey Belitsky, *Private Vocational Schools and Their Students* (Cambridge, Mass.: Schenkman Publishing Co., Inc., 1969).

tions to state and local educational agencies and institutions of higher education undertaking to initiate or expand vocational education programs.

As a matter of operating procedure, the various divisions and branches of the Bureau of Adult and Vocational Education of the U.S. Office of Education frequently appoint industry representatives to ad hoc advisory committees to assist in developing new occupational curricula guidelines of national import. Such committees can provide an admirable informal service in advancing the cause of vocational education.

While State Advisory Councils were required under provisions of the Vocational Education Act of 1963, neither the law nor the rules and regulations issued by the U.S. Office of Education provided any guidelines as to their functions and responsibilities. To the best knowledge of this writer, there is no record of published articles, dissertations, etc., concerning the operation of State Advisory Councils, except for the proceedings of a national conference sponsored by the AFL-CIO Education Committee and funded by the Office of Education to explore the role of labor representatives on the Councils. For all realistic purposes, it can be assumed that little has been written about State Advisory Councils on Vocational Education because so little was accomplished by them. Without any case histories of successful experience, the writers of guidelines for the organization and modus operandi of the Councils under P. L. 90-576 have an unprecedented opportunity to develop a new type of organizational structure and relationships between vocational educators and industry representatives particularly at the local and state levels. In the final analysis the State Councils will have the primary responsibility for providing the needed leadership in developing effective industry-education cooperation at the local level—where the action really is.

It is clearly the intent of Congress, as expressed in the language of Section 104(b) of P. L. 90-576, that the State Advisory Councils engage in activities which are both operational and advisory. It is also clear that Congress meant that the National Advisory Council and the State Advisory Councils should serve as "watchdogs" for the U.S. Office of Education and the State Departments of Education and the State Boards, respectively, in the administration of federally supported vocational education programs, and that they should be consulted in the development of plans for achieving the goals and objectives of vocational and technical education, And it is also the intent of Congress that the National Council and the State Advisory Councils be provided with funds to employ full-time staff as well as "the services of professional, technical and clerical personnel as may be necessary." It is also clear that Congress was quite aware of the need for industry participation in vocational education, of industry's desire and willingness to be involved, and of the past and current failures of vocational educators to achieve the fullest possible utilization of industry resources. In providing reimbursement to employers for additional costs of cooperative education programs, for example, Congress demonstrated its desire to expand such educational programs. In providing staff and funds for the operation of the State Advisory Councils, Congress was explicitly instructing vocational educators to assume the initiative in arranging for industry participation. And in describing in detail the functions of the State Advisory Councils, Congress made it clear that full and meaningful participation of industry in vocational education calls for cooperation—not just advice which educators may accept or reject. Furthermore, it is abundantly clear that Congress does not intend for industry, nor will industry continue to be satisfied, to merely assist vocational educators in designing and revising curricula—the major traditional area of industry-education cooperation—but will insist on a full partnership in almost all facets of vocational and technical education, including evaluation of programs as called for by P. L. 90-576.

The evolution of industry-education cooperation over the past five years in the field of vocational education has gone through the stages of oratory, exhortation, persuasion, and now, legislative mandate. However, no one really looks to a law to guarantee such a nebulous concept as "cooperation." Cooperation is an activity which takes place only when it is to the best interests of those concerned to cooperate, and provisions are made within the cooperating organizations for achieving cooperation. Successful case study reports of industry-education cooperation in vocational education have proven that over the years such cooperation is in the best interests of all concerned. The new law, requiring what is in effect a new level and new types of cooperation, is solidly based on the experience of progressive and sophisticated educators working with sophisticated industry people. There is no doubt that this experience, given impetus and support by P. L. 90-576, will usher in a period of newly relevant involvement, participation, commitment, and cooperation by industry with and for vocational and technical education both on a volunteer and for-profit basis.

In the not too distant future, the social conscience of industry may well move from "adoption" of individual schools to embracing the entire school system as part of its responsibility for assuring our nation's well-being and continuing growth and prosperity. Educators can hasten that day by organizing for and actively seeking industry cooperation in resolving school problems and in developing new programs of industry-education cooperation.[37]

Whether industry people or educators take the initiative in providing for industry-education cooperation may largely determine the form of such cooperation. That the role of industry in public education will grow, however, is not a matter of speculation. In a recent study of more than 400 books and articles as to the future of education in the 1970s, the researchers reported:

> During the next 10 years, business will participate in education to a greater extent. . . . The growth of a cooperative business-and-education relationship will be of great portent in the seventies.[38]

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[37] Samuel M. Burt and Leon M. Lessinger, *Voluntary Industry Involvement in Public Education* (Lexington, Mass.: D. C. Heath Co., 1970).

[38] Harold G. Shane and June Grant Shane, "Forecast for the 70's," *Today's Education—NEA Journal* (January 1969), pp. 29-32.

Chapter 8

STAFFING VOCATIONAL–TECHNICAL PROGRAMS

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Chapter 8

STAFFING VOCATIONAL-TECHNICAL PROGRAMS

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The recruitment, development, maintenance, and replacement of vocational and technical teachers pose all of the problems associated with staffing general education programs. In addition, a number of difficulties exist which are much more characteristic of vocational and technical education than of the other phases of education.

Undoubtedly, the most important difficulty is that no phase of education has a reliable criterion of teacher effectiveness. Lack of this criterion is a serious deterrent to evaluation of the effectiveness of programs for staffing vocational-technical education. Nevertheless, the acute shortages of staff allow and demand evaluation of teacher education programs on the basis of whether or not they produce adequate quantities of teachers who are employable and who have the ability to survive in the face of conflicting demands of students, employers, employee groups, and school administrators. Few teacher education programs can pass even this less demanding evaluation.

Staffing of vocational and technical education has been a long-neglected area. The field has a history of extremely rapid expansion for a period of approximately five years in each generation, followed by a fifteen- to twenty-year period during which the program remains virtually constant in size. During the periods of rapid expansion, the acceleration effect demands crash programs of recruitment of relatively untrained teaching and administrative personnel who learn more or less effectively on the job, frequently with no help from in-service teacher education programs. The periods during which program size remains relatively constant require preservice programs only large enough to fill the vacancies caused by retirements, resig-

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nation, and death. During the periods of rapid expansion everyone is too busy recruiting faculty to worry about adequate training. Staff recruitment has been particularly difficult because expansions in vocational education have occurred during wartime or boom conditions when teaching is least competitive for the best people at prevailing salaries.

During the periods of relative stability in size of program, most of the energies of vocational education administrators have been devoted to lobbying to combat pressures for complete elimination of the program, rather than to improving the competencies of their staffs. Without question, the cyclical nature of the size of vocational and technical education programs has been one of the major deterrents to the development of adequate staffing procedures for the field.

Another major problem has been the increasing rate of obsolescence of the technical knowledge of the teacher. The vocational-technical teacher has always had to face change, but it is likely that the teacher of automotive mechanics must learn more new material now each year than he was required to learn in perhaps five years during the late 1920s. While the rate of change is markedly different from field to field in vocational and technical education, there is no question but that the rate of change has accelerated in all fields.

Everyone agrees that emphases in vocational and technical education should bear some relationship to the demands of society. One view is that vocational education should offer instruction only in fields of employment for which there is maximum demand, and should start and stop programs in direct relationship to demand for employees. An opposing point of view maintains that the primary goal should be to serve students rather than the demands of employers and that vocational education should go on even during periods of economic recession when it is extremely difficult for graduates of the programs to find employment. Vocational and technical teachers in the public schools generally hold to the latter point of view. In common with other teachers, they have demanded and secured teacher tenure. Where the teacher is narrowly specialized, his continued guarantee of employment has often made it extremely difficult to adapt programs to changing needs of society.

Teacher tenure has had the positive effect of retaining vocational and technical teachers in the face of much higher salaries available in nonteaching employment. But it has also had the effect of making it almost impossible for the school to discharge the teacher. If the school wishes to eliminate a particular vocational program and replace it with another, the teacher must be retrained, or reassigned to teach a subject for which he often is not fully qualified, or the school must wait until the teacher leaves voluntarily. Only the first of these three alternatives can be considered to be desirable, but it is quite impractical in the absence of specific assistance from state and federal governments.

Problems of preservice teacher education vary greatly from field to field in vocational and technical education. Much of the technical content which the teacher must teach is provided in formal school settings for teachers of nursing, engineering technology, agriculture, home economics, and business education. On the other hand, teachers of plumbing, printing, power sewing, and many other occupations can secure very little of the technical content of their occupations in formal school settings. Universities are moving at a rapid rate to further eliminate technical instruction in certain occupational fields, for example, typing, shorthand, bookkeeping, marketing, and applied aspects of engineering. On the other hand, some land-grant universities are adding instruction in police science, health technologies, aviation technology, computer technology, and other fields where the demands of society are very great or where the occupational field appears to be "respectable." The major change, however, is occurring in community colleges and regional four-year institutions which have adopted many of the characteristics of community colleges.

It appears likely that in the next decade most new vocational and technical teachers will have had a minimum of two years of formal instruction in their occupational field in a community college or technical institute. Moreover, in many cases, this instruction will be supplemented by at least two years of general education, instruction in pedagogy, and some advanced college credits in the teacher's technical specialty.

There is general agreement that formal instruction in the occupational field should be further supplemented by actual employment in the occupation which is to be taught. No matter how well organized the formal instruction is, it cannot duplicate in every respect the development of effective work attitudes and understandings of relationships with other workers. Equally important, it cannot provide the application of principles and the integration of knowledge which can occur on the job. (A surgeon who had had no internship would be a dangerous risk in spite of the high level of his formal education.) Moreover, there is a "face validity" in being able to say to your students, "I know from personal experience many of the problems which you will face."

Teacher Certification

While work experience is almost universally considered to be desirable, it is mandatory in some fields of vocational and technical education and not required in others. State departments of education and/or of vocational education determine certification requirements for teachers. These requirements vary considerably from state to state, but they differ even more greatly from field to field of vocational education within one state. There is a very high negative correlation between the availability of formal instruction which is related to the occupation and the amount of work experience required of the instructor. Agriculture, home economics, and business education are three fields for which formal instruction has generally been available in higher education. These are the three fields for which actual work experience beyond age 18 is rarely required by state regulations. Little or no formal instruction has been available in higher education for trade and industrial education and distributive education. These are the two fields for which actual work experience is always required.

When a state requires work experience as a condition of certification for vocational teachers, it does so to assure that the teacher has the necessary technical competencies in the field in which he is to teach. The most common way of assuring this technical expertise is to specify a minimum number of years of successful experience in employment. There is general agreement that twelve years of employment experience may have taught some people very little (both because some employment is routine, repetitious, or highly specialized, and because some people learn much more slowly than others). But the evaluation of employment experience suffers from some of the same difficulties as the evaluation of formal education. The easiest solution in both cases is to specify that a minimum number of hours be spent in a particular activity rather than to inquire as to how much has been learned. Two states, Pennsylvania and California, have had considerable and successful experience with trade competency examinations, but even they would be unwilling to grant certification in trade and industrial education to a person who could pass the examination but did not have several years of employment experience. This is justified on the ground that the tests do not measure some very important things that can be learned only through employment. No one knows how crucial these omissions may be.

In many parts of the country, and particularly in periods of shortage of qualified workers (when vocational and technical education are most likely to be expanding and needing new teachers), there is such a shortage of qualified instructors that certain requirements are frequently waived. Most commonly the first step in meeting a teacher shortage is to waive requirements for preservice teacher education. If this is not sufficient, the requirement of a certain number of years of successful employment experience is reduced.

In most teacher education programs, all persons who complete certain minimum collegiate requirements are certified regardless of whether or not teaching positions happen to be available at the time of certification. This has not been the case in trade and industrial education, distributive education, technical education, and health occupations education. Rather, teaching certificates in these fields are issued only to persons who are being offered a reimbursable teaching position. Home economics, agriculture, and business education have generally followed the practice of issuing teacher certificates to people who complete a prescribed teacher education preservice program. These three programs have experienced much less fluctuation in size of programs than have the other phases of vocational and technical education. No one knows if there is a cause and effect relationship.

It is generally recognized but seldom admitted that during periods of teacher shortage, teaching certificates are awarded to individuals who would not be considered for certification at other times. This is the primary reason why certificates tend to be issued in these cyclical fields only to persons who are about to begin employment. Unfortunately, in vocational and technical education as in most other professional fields, certification, once obtained, is difficult to revoke. Part of the answer to this problem is greatly improved programs of in-service education to upgrade certain incumbents. A second part of the answer should be periodic re-evaluation of qualifications to determine whether or not a person should continue to be certified.

In theory, in-service teacher education should be primarily the responsibility of the employing school district, with higher education providing assistance as requested. Preservice education is theoretically the responsibility of higher education, with the employing school districts being of assistance as needed. In vocational education, however, each state director of vocational education, through his state plan, accepts responsibility for both preservice and in-service education of reimbursed teachers. This makes him legally responsible for maintenance of adequate programs. It is his responsibility to channel resources through appropriate agencies and to withdraw support from an agency which cannot perform satisfactorily.

In practice, in-service education is as sadly neglected in vocational and technical education as it is in other fields of education. Home economics, agriculture, and business education are the only types of vocational and technical education commonly found in the small school. Contrary to the usual current assumption, these fields are probably the best taught of all the fields of vocational education in spite of the fact that the small school does not have the resources for adequate in-service teacher education programs. Rather, because these three areas of instruction are relatively old, well-established, and homogeneous, and because they bear a close relationship to academic departments and extension services in higher education, reasonably adequate in-service programs are available through colleges and universities. Other types of vocational and technical education which are commonly offered in larger school systems have minimal programs of in-service education in a few cities, but in most school districts they are more neglected than the other teaching fields because they have no established academic field on which they can draw for support.

Almost all public school and community college teachers are paid on the basis of number of years of teaching experience and number of credit hours in graduate school or its equivalent. In theory, supply and demand for teachers in a particular field do not affect their salary. In practice, minor adjustments to meet the market can be made by administrators. The most effective of these adjustments comes at the time of employment. If the school has had difficulty in employing teachers of a particular type, the next qualified candidate likely will receive credit for employment experience and military experience. Such experience may be credited as teaching experience or graduate school credit. This raises the initial pay level but does not increase the maximum pay which can be obtained. A few schools have established salary schedules which give credit for occupational experience at a rate equivalent to the bachelor's degree.

Once a teacher has been "placed on the salary schedule," adjustments relative to other teachers are more difficult. Still, the effective administrator finds a way. Assignment to duties which command extra pay is one method. Night or summer teaching, teaching an extra class, coaching, ticket-taking, maintenance of equipment or buildings are frequently used as sources of higher compensation. Unfortunately, all of these duties require time and effort which might better be spent on duties related to the regular teaching load. For the teacher there is no equivalent to the athlete's job with nominal duties. Other teachers who would like the extra income insure that full hours are worked.

Vocational teachers sometimes receive the equivalent of graduate school credit for summers spent in employment in the occupation they are teaching. Certain vocational teachers, because of their skills, are likely to get the better paid school equipment maintenance oddjobs. The former of these is usually suspended if teachers are easy to find, but the latter may actually increase in times of recession, since the school can often employ teachers more cheaply than tradesmen.

Prototypes of Desirable Teacher Education Programs for Vocational and Technical Education

In-Service Programs

The "First-Year Teacher Program." In a few states, in agricultural education, there is a systematic attempt to provide assistance to first-year teachers. All teachers in the state or a region of a state are invited (and strongly urged by the State Board of Vocational Education) to enroll in a program designed to serve their needs. An experienced teacher-educator in agricultural education meets with ten or fifteen of these teachers each Saturday in a central location. Other experienced teachers and state department of vocational education personnel serve as resource persons. The new teachers review the problems they are encountering and receive suggestions for solutions. Instructional materials are selected or prepared to meet the needs of the particular teaching situation in which the new teacher finds himself. The instructor visits the new teacher on the job to identify needs which the latter might not recognize. Graduate credit is granted for the course, which may extend over one semester or for the entire academic year. New teachers, school administrators, state department personnel, and teacher-trainers are enthusiastic about the benefits which accrue from this program. While it is relatively inexpensive compared to other in-service teacher education programs, the institution of higher education which is responsible for the course normally feels that it needs financial assistance to cover the sizable amounts of travel and staff time required.

Technical Training Provided by Manufacturers and Distributors. Many manufacturers and some distributors operate schools for training users of their newer products and services, and these schools often reserve enrollments for teachers at reduced rates or even free of tuition. Manufacturers of automobiles, computers, hydraulic equipment, business machines, electronic parts, chemicals, welding supplies, etc., run such schools. Instruction is generally of very high quality and is extremely intensive, and some of the best vocational and technical teachers regularly avail themselves of the opportunities provided by these schools and thus keep up-to-date technically. A few (but far too few) school districts will accept attendance at such schools on a par with an equal amount of time spent in graduate school.

Unfortunately, the method of announcing the availability of these schools is extremely haphazard. Manufacturers very often allow distributors to recommend potential enrollees for the school. Very often the small customers of the distributor are neglected, and a particular teacher may not be known to the distributor. A nationwide communications network announcing the availability of applications for enrollment in industry-operated schools would be a tremendous forward step in in-service education. A few universities offer graduate credit for attendance at industry-operated schools, but such arrangements are normally not made unless the initiative is taken by the operator of the school. It probably would be desirable for continued state certification to be dependent upon attendance at such schools, though if enrollments were much larger than at present, the industry-operated school would certainly be justified in requesting reimbursement for added costs. It also would be desirable to have subsidized fellowship programs for teachers, who must forego earnings to attend.

Twelve-Month Employment Plans. Undoubtedly the most versatile in-service teacher education programs are operated by a few post-secondary schools which employ teachers on a twelve-month basis, even though most of their instruction is confined to the nine-month academic year. One of the earliest schools to begin this program was Oregon Technical Institute at Klamath Falls, Oregon.

Every state has in operation a more or less extensive program of Saturday and evening classes conducted by itinerant teacher-educators. This instruction is confined almost exclusively to pedagogy, with emphasis on methods of instruction, organization of curriculum materials, and evaluation of instruction. In most states these teacher-educators are employed by a university, and graduate or undergraduate credit is given for the teachers-in-training. For historical reasons, which seem no longer to apply, teachers of agriculture, home economics, trade and industrial education, etc., are almost never taught in mixed classes. Indeed, in many states, if a teacher completed a particular class with a teacher-educator from a field other than his own, the teacher would have to repeat the class with a teacher-educator from his own field.

One of the most neglected phases on in-service teacher education is education of the part-time teacher. Much of the vocational education for adults is taught by part-time teachers who are employed full-time in the occupation they are teaching. Most states require neither preservice nor in-service training for these part-time teachers, who are generally technically competent but have had no instruction in how to organize and present the material they know so well. The most satisfactory method of in-service training seems to be to require the part-time teacher to attend two or three evenings of in-service instruction for which he is paid at the same rate as if he were teaching his regular evening class. This instruction is organized by the local administrator of vocational education and may be taught by him, by his staff, or by an itinerant teacher-educator from a university or from the staff of the state department of vocational education.

Employment in the Occupation Taught. One of the best ways to keep abreast of changes in technical content in an occupational field is to maintain employment in that field. Since it is an economic necessity for most vocational and technical teachers to have employment during the summer and on Saturdays during the school year, there is a natural opportunity for earning and learning to be combined. Unfortunately, openings for part-time and summer work may not be available for the teacher in the occupational field which he is teaching. This leads him, oftentimes, to take completely unrelated employment which provides earnings but does not keep him abreast of his occupation. Even worse is the situation of the teacher who is so incompetent in the occupation he is teaching that he is not employable. Not being employable, he will, over time, almost certainly become even less competent in the field he is teaching. Some local administrators of vocational and technical education have established relationships with employers which cause them to reserve part-time and summer jobs for teachers, on the basis that it is in their own best interest to have competent instruction provided by the schools. In some communities this is thwarted by labor agreements which specify that all employees who are laid off must be returned to full employment before part-time or temporary workers can be added. The larger the community, the more likely such agreements will prevent meaningful summer employment of teachers. Teachers of most school subjects would profit from part-time employment related to the subject they teach. Evans reported that the only significant difference between exceptionally good and exceptionally poor trade and industrial education teachers was that the effective teachers worked part-time or summers in the occupational field which they were teaching.[1]

Role of Publications and Conventions. Professional associations of teachers have contributed considerably to their in-service education. Association publications are devoted primarily to administration, supervision, funding, teacher education, and history and philosophy of the field, with little attention being given to matters which would be of immediate assistance to the classroom teacher. This is in marked contrast to the publications of professional associations of teachers of English or mathematics. On the other hand, the conventions and professional meetings of vocational teachers devote considerable attention to pedagogical topics and to new technical developments. Displays of new equipment and supplies which are a major feature of regional, state, and national conventions are of considerable assistance to teachers.

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[1] Rupert N. Evans, "Case Studies of Good and Poor Day Trade Teachers," *Industrial Arts and Vocational Education*, 44 (1955), pp. 285-89.

Trade publications and technical books potentially are good sources of information about new technical developments. The volume and quality of these publications are increasing sharply. A worthwhile investment on the part of the school would be to pay for two or three periodicals and four or five books in each teacher's technical field each year. Agriculture and home economics teachers long have received effective assistance through the free or low-cost technical publications subsidized by state and federal governments.

In a few states and regions, vocational and technical teachers have organized associations along subject-matter lines. For example, the vocational machine shop teachers in Illinois have long had an association of their own. These groups may have convention programs, newsletters, procedures for sharing instructional material, consultative service to answer technical or pedagogical problems, one- or two-week retreats for the development of instructional materials, and even "secret" societies for social and professional purposes. Certain of these activities may be subsidized by state funds, but usually they are not. Where such associations are active, they are a very potent force for in-service teacher education.

Preservice Education

Preservice teacher education programs in agriculture, business, and home economics are almost invariably patterned after teacher education programs for other secondary school specialties. In those universities which have eliminated skill subjects in business (typing, shorthand, etc.), it has been necessary to secure instruction through community colleges, business schools, or high schools. Technical education, distributive education, trade and industrial education, and health occupations education generally have no effective programs of preservice education.

Innovations in preservice education are much rarer than in in-service education. Preservice education is very largely controlled by state departments of vocational education which often specify in state plans the titles and content of courses required for certification.

In-service education, however, is rarely specified in any way by the state departments. Colleges of agriculture, education, engineering, home economics, and commerce and business education, which most often conduct preservice programs, have made few changes in the parts of the program for which they are responsible and have not been noted for leadership in attempting to change the views of state departments of vocational education. The federal government is also responsible, in part, for the lack of progress in preservice education. Vocational education is the only field closely related to the national defense which was excluded from the National Defense Education Act of 1956. This Act has had a marked effect on quality of preservice education in all of the fields for which it provided support. Colleges and universities prepare plans for desirable teacher education programs under the NDEA and submit them to the U.S. Office of Education; the "best" of these proposals are supported. In contrast, from 1917 to 1963 teacher education in vocational education was simply one of many activities into which the state director of vocational education might decide to channel funds. The situation from 1963 until 1968 was no better. Teacher education was listed along with five other "ancillary services" for which a minimum of 3 percent of state funds must be used. Curriculum development and administration, two of the other ancillary services, could and did use the required 3 percent in most states.

In large part, the federal government is also responsible for the greatest deficiency in teacher education in vocational and technical education: the subdivision of the field into teacher training departments scattered in a variety of departments in a variety of colleges. Sometimes these departments are separated geographically so that teacher education in trade and industrial education may be situated 100 miles from teacher education in distributive education. This division of teacher education programs followed the divisions established by the 1917 Smith-Hughes Act and duplicated the administrative structure of the U.S. Office of Education and the various state departments of vocational education. Not until 1968 was there an appreciable move away from this pattern of organization, funding, and record-keeping, though a few institutions had broken from the pattern as early as 1960. At the present time combined departments of vocational and technical education are being formed on a number of campuses, and where this has not proved possible, due to conflicting college loyalties, strong patterns of coordination among existing departments seem to be taking shape. No one has yet found a pattern for resolving the problem of departments which have been dispersed among different teacher education institutions in the same state. Either the state must make a decision to place this work on one campus, or each campus which now has a vocational education program must develop teacher education in the other fields of vocational education. The first alternative is apt to be quite traumatic, and the second is apt to be costly and inefficient.

The two innovative programs of preservice vocational and technical teacher education described below grew out of necessity.

The Alberta Plan. The province of Alberta, Canada, has established a number of post-secondary vocational and technical schools to meet the extreme shortages of skilled manpower caused by the rapid expansion of its industrial base. This, in turn, created a demand for sharply increased numbers of qualified instructors. A reasonably satisfactory solution to this dilemma grew out of the program established at the University of Alberta under which competent engineers, skilled workers, and other first-rate employees were recruited to enter a short-term teacher education program. This intensive program covered a one-year period during which the highly competent specialist became a reasonably competent teacher of that specialty. The potential teacher was paid a salary only slightly below that which he would have earned as an employee in private industry, with half the funds coming from the federal government, one-fourth from the provincial government, and one-fourth from the school which intended to hire the graduate of the teacher education program. A few students who had not established connections with a particular school received three-fourths of the stipends of the remaining students. While not everything can be accomplished in one year, a great deal can be done in an intensive program of this length. The real key to the success of the University of Alberta plan, however, has been the quality of the trainees and of the staff who provide the teacher education. Salaries paid to the trainees are sufficient to attract them to a teacher education program, even though many of them had great doubts about their ability to succeed in the highly selective Canadian university. This program is now in operation in several Canadian provinces with generally highly effective results.

Cooperative Work-Education Plans for Teachers. In the early 1950s the State Board of Vocational Education in Michigan approved a new method of preservice teacher education for vocational education which combined on-campus instruction in the University and supervised work experience. It is basically a part-time cooperative program which produces a vocational instructor with a bachelor's degree and adequate occupational experience to serve as a vocational instructor. It was adopted in Michigan and later in Illinois as a means of meeting a shortage of competent trade and industrial vocational instructors. The shortage exists because comprehensive high schools and community colleges desire instructors who have at least a baccalaureate degree in addition to the occupational experience needed to give adequate vocational instruction. While the program has produced capable vocational instructors, for two reasons it has been inadequate in terms of meeting the need for teachers. First, too few college students are attracted to it because it requires five years for attainment of a baccalaureate degree plus the necessary occupational experience. These same students could enroll in a four-year industrial arts, business education, agriculture, or home economics program and receive a baccalaureate degree at the end of that period. Moreover, the starting salary for all of these teachers who might be employed in a comprehensive high school would be nearly identical. In recent years, military draft regulations have made it impractical for male students to enter a baccalaureate program which requires more than four years for completion, or which includes even one semester of employment for which less than full academic credit is granted. Either of these conditions makes the student immediately eligible for the draft.

Secondly, the few individuals who were attracted to the program were highly sought after by employers. Many employers are very much interested in finding students who have the wide breadth of occupational experience afforded by this part-time cooperative program together with a baccalaureate degree. The graduates of the program typically earned considerably higher starting salaries in industry than were paid to beginning engineers and physical scientists. These salaries were well above those available to beginning teachers. Still, experience with the program proved that if students could be attracted to the program, over half of them would become teachers in spite of the higher salaries available to them in industrial employment. Federal or state funds have never been employed to provide fellowships for students in this program. This type of support would undoubtedly help greatly to attract the capable students needed to become the vocational teachers of the future.

Retread Programs

Teacher education programs designed to convert a person from one type of teaching to another are not readily classifiable as either in-service or preservice. The most common, though inelegant, name for teachers who have been retrained is "retreads." Retreading has been a major source of vocational education staff, though no one knows its full extent. Most retreading undoubtedly occurs in trade and industrial education, but it is probably a significant factor in business education, technical education, distributive education, and cooperative work-education programs of all types. Unfortunately, most retreading occurs in a haphazard manner which cannot be described as a program.

General Education Teachers Who Become Vocational Teachers. Teachers of industrial arts and general business are usually overworked. They may prepare for five classes a day, have thirty students per class, and be expected to use overcrowded and underequipped facilities. For these and other reasons, vocational teaching may appear more attractive.

The biggest barrier to a transfer is the securing of a sufficient amount of occupational experience. However, most male teachers (and an increasing proportion of female teachers) feel the economic necessity of working part-time during the school year and full-time during the summer vacation. If they teach a practical arts general education course, and if they secure employment in an occupational field related to what they are teaching, they are almost certain to learn things which will improve the quality of their instruction. If this employment is long continued, the teacher will accumulate enough experience to be qualified for employment in vocational education. Through a variety of devices, most states will exclude him unless there is a severe shortage of vocational teachers. The exclusion is based on a contention that part-time employment is not as educative as full-time employment. There is no research to support this contention, and it appears likely that exclusion is based upon a desire to maintain balance between supply and demand for vocational teachers.

If the general education retread can get over the hurdle of acceptance of his employment experience, the next hurdle will be academic. Though he likely will have a bachelor's degree and may have considerable graduate credit, he will be required to repeat four or more courses with a teacher-educator who is approved by the state to offer instruction in a particular field of vocational education.

Once past these hurdles, this retread is much more employable than a person who has come through the traditional routes of preparation for trade and industrial education and distributive education because he holds a degree and is certified as a teacher of at least two subjects. Administrators like to have staff members who permit flexible assignment.

Part-Time Teachers Who Become Full-Time Teachers. There is general agreement that part-time to full-time teaching is a very desirable retread route. If a part-time teacher discovers that he enjoys teaching, and if school officials discover that he knows his subject matter and is reasonably effective in teaching it, he is likely to be encouraged to move to full-time teaching. Teacher education requirements will be the same for him as for a person who has had no teaching experience, though logically he would need less.

Military and Industrial Teachers Who Move to Public School Vocational Teaching. Many teachers in training programs operated by employers, trade associations, and unions perform tasks which are nearly identical to those performed by vocational teachers in public schools. Salaries are lower in many public schools, and class size is considerably higher. While public schools offer tenure as a teacher, industrial schools offer tenure as an employee, even if the school should close. Indeed, many schools in industry deliberately rotate personnel between teaching in their schools and working in the occupation to be taught. For these reasons, few teachers from schools in industry move to public school teaching. Most of the little mobility which does exist is in the opposite direction.

This is not the case with military schools, however. A small but significant portion of military technical training is directly applicable in civilian vocational and technical education. Military retirement policies make it economically desirable for many of the technical instructors to seek civilian teaching positions after twenty years of military service. When the military instructor has been fortunate enough to teach in a program which has direct applicability to civilian life, no significant difficulty arises. He is immediately employable, and most states will accept his military teacher education at face value. Usually it has been much more extensive than is required by the state for public school vocational teachers.

Real difficulties occur, however, for the military instructor whose specialty is in large part peculiar to the armed forces. Understandably, the tendency in military schools is to emphasize military rather than civilian practice. If a military school offers instruction to recruits in a form which is immediately valuable in civilian life, these recruits are less likely to re-enlist. Consequently, broad courses covering the whole of an occupational field tend to be offered to military personnel who have been in service for some time and are likely to remain until retirement. The vast majority of military students and military instructors are concerned with subjects which either have little direct value in civilian life or are fragments of an occupational field so specialized as to be of little transfer value to civilian life.

Retraining programs for retired military instructors could be of enormous benefit. In most cases, emphasis should not be upon pedagogy, since the military instructor is reasonably well prepared for teaching. Rather, he is likely to need further technical instruction and experience related to civilian occupations.

Vocational Teachers Whose Skills Are No Longer Needed. The person who most needs a retread program is the vocational teacher who is on tenure but whose instructional field should be phased out of that school. Theoretically he could move to a school where his specialty is still in demand. In practice, however, salary schedules discriminate against newcomers, and moreover, it is likely that teachers in his field will be in oversupply throughout the country.

The common practive is to retain him until retirement, filling his classes with students who have no strong occupational preferences. Early retirement, subsidized by state and federal funds, would be economical for certain older teachers. For younger teachers, a retread program of the type suggested for military teachers would be more effective.

Legislation for Support of Vocational Teacher Education

The report of the Essex Advisory Council on Vocational Education in 1968 emphasized the need for preservice and in-service development of vocational and technical teachers. It pointed to a projected increase of 150 percent in the number of teachers in the decade ending in 1978, which would require marked expansion of preservice and retread programs. It pointed to the need for re-education of teachers to enable them to adapt to changes in occupations, which would require an equally great expansion of in-service teacher education programs.

Almost all of the Advisory Council's recommendations were incorporated in the Vocational Education Amendments of 1968. The sections of this Act having to do with teacher education were embodied in the Education Professions Development Act. In the process of moving from recommendation to enactment, some very damaging changes were made.

With minor exceptions, only teachers with baccalaureate degrees are eligible for training or retraining. Almost all teachers of production agriculture, homemaking, and college-based business education have bachelor's degrees. All other fields of vocational and technical education have lower proportions of teachers holding baccalaureates. In trade and industrial education, 60 percent of Ohio teachers and 53 percent of California teachers would not be eligible for most of the benefits of the teacher education provisions of the Act.[2] Every major new program in vocational and technical education, from agribusiness to waterworks technician, must recruit a high proportion of its teachers from skilled employees who usually do not have a college degree. None of these teachers would be eligible for preservice programs, nor would they be eligible for in-service training until they had taught for three years.

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[2] *Vocational Education: The Bridge Between Man and His Work* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968), pp. 91-92.

The net effect of these provisions is to discourage the recruitment of teachers in new and expanding fields and to give preference to the graduates of traditional vocational education fields which award baccalaureate degrees to prospective teachers. Surely this legislation should be rewritten to place emphasis on occupational competence rather than on holding a college degree.

Summary

1. Little attention has been paid to staffing vocational-technical programs. Cyclical expansion has encouraged protection of incumbents rather than systematic induction and upgrading of new staff.

2. Some types of vocational teachers have received most of this technical knowledge in college, while others have learned their skills through employment experience. Most new and expanding programs must secure teachers from the latter source. As community colleges expand their technical education programs in new fields, a higher proportion of vocational and technical teachers will receive at least part of their education from this source.

3. Employment experience is highly desirable for all vocational and technical teachers and probably should be a requirement. Length of experience is less important, however, than the amount learned. Yet length of experience is the most common measure of competence.

4. Certification requirements vary in response to supply and demand for teachers. This variation would be reduced if adequate teacher education programs could be planned to meet projected demands.

5. Information about the availability of suitable courses for teachers is not generally disseminated. This is particularly true for industry-operated courses. Communication of this information to teachers should be done on a nationwide basis, possibly as a responsibility of the U.S. Office of Education.

6. Several types of effective in-service programs for teachers are described; all need further evaluation. None of them seems able to flourish without financial support from state or federal sources.

7. Too little attention has been paid to teacher education programs to convert one type of teacher to another. "Retread" programs offer considerable promise for meeting manpower shortages in voca-

tional and technical teaching; they are the only effective means of coping with the problem of the tenured teacher whose technical skills are no longer needed.

8. For the first time we have a federal program for vocational teacher education. Title II of the Vocational Education Amendments of 1968 has many desirable features. Unfortunately, it discriminates against teachers who do not have college degrees. These teachers are most in need of help. Moreover, instructors in new and expanding occupational fields are much less likely to hold college degrees than are teachers of production agriculture, homemaking, and college-based business education. This legislation should be rewritten to assist in the educational development of teachers who are most needed and who most need teacher education.

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Chapter 9

EVALUATING VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS

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Chapter 9

EVALUATING VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS

Jerome Moss, Jr., and Ernst W. Stromsdorfer

Conceptual Issues

The Purposes of Program Evaluation

Within the last decade the evaluation of investments in the human agent, such as vocational and technical education,[1] has been in vogue among social scientists and public officials. Unfortunately, much if not most of this evaluation is of little or no use for purposes of making reasoned choices among competing social programs. This is due to the methodological errors which mar many studies as well as the lack of effective techniques to handle many of the more difficult issues which arise as a part of the evaluative process.

The evaluation of vocational education and other types of social programs is important because, in a world of scarcity, evaluation provides evidence about the relative merits of alternative courses of action to achieve a given end and about the extent to which we are achieving prescribed ends. Educators, government officials, and the public can then make more rational decisions about the allocation of resources.

Most of the analyses of vocational education which have been done must be considered to be only descriptive. They catalogue the various characteristics of programs or report the number of students who are graduated or who find a training-related job. This type of analysis does not comprise program evaluation as the term is under-

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[1] Henceforth in this chapter, only the term *vocational* will be used. Of course, the discussion applies equally well to technical education.

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stood here. The assertion is not meant to downgrade the significance of descriptive efforts, which are a necessary input into program evaluation, but to point out that such efforts should not be mistaken for evaluation itself.

As it is perceived in this chapter, the most important purpose of program evaluation is to determine the relative efficiency of a set of activities to attain desired ends; it assumes that there are alternative means of achieving a given end or set of ends. First, the process requires a comparison between the outcomes of two or more sets of activities to achieve a given end. Second, the process requires that differences found are attributable to variations in the program activities. The perspective on evaluation is therefore on the relative quality of specific programs. It answers such questions as: What kinds of activities will maximize the efficiency of this auto mechanics program in terms of accepted program goals? Which of these two electronic programs is better for my purposes? What would I gain and lose by adopting the new practical nurse curriculum?

Evaluation serves at least two other purposes. First, instead of using a relative standard based upon a comparison of outcomes from alternative activities, program developers frequently attempt to utilize fixed quantitative standards. That is, they ask: How well is my new program achieving its predesignated performance objectives? Second, educators, legislators, and the public are commonly concerned about the size, scope, and appropriateness of the statewide or the nationwide program in relation to current or predicted social requirements. They tend to ask the more macro level questions about vocational education, but also employ arbitrary sets of standards in seeking answers: Is the total program serving the number of people who can benefit from its services? Are the kinds of programs provided suitable to the needs of the labor force? While both kinds of questions are legitimate, the evaluative processes used to answer them will not be treated at length in this chapter. Instead, those processes will be used primarily as contrasts to the evaluative model designed to help more reasoned choices *among* competing vocational programs.

A Model for Program Evaluation

To properly evaluate the efficiency and effectiveness of a social program, in this case, vocational education, the evaluative model should examine the nature of the alternative processes which could be used to produce the outputs designed to fulfill the objectives of the program. Second, the model should determine which production process is most efficient.

This type of evaluation has three major characteristics. First, it is quantitative. There must be some measure of both costs and benefits, though these costs and benefits can be expressed in either monetary or nonmonetary terms. Second, the evaluation must be directly related to the purposes being served by vocational education. Thus, the appropriate specification of the objective or set of objectives of the program is critical to the evaluation. Inappropriate specification of objectives as well as ill-conceived choice and construction of indexes to measure the attainment of objectives will result in an invalid evaluation. Third, the evaluation links costs with benefits; the public should invest in those parts of the education process which for a given cost will optimize the output.

Treatment of either costs or benefits in isolation cannot provide valid information in making choices. Costs and benefits of the entire program, however program limits are defined, must be considered in conjunction. The net effectiveness of any activity within vocational education will be due to the effects of costs and benefits as these have their impacts over time.

Therefore, an appropriate model to evaluate any program within vocational education should include the following steps:

1. The objectives (desired program outcomes) must be specified.
2. The processes or activities used to implement the program must be specified.
3. Measurable indexes of the output of the program must be specified.
4. The production function (or process) must be specified whereby the output of any given activity is related to the set of relevant inputs to that activity.
5. A cost function or cost relationship based on the production function given for each activity must be specified.
6. A comparison between outputs (units of change in the output indexes due only to the program or activity in question) and program costs must be performed.

These points are discussed below.

Program Objectives and Outputs

The objectives of vocational education, as with any other social program, should be made explicit. Fortunately, vocational education is more efficiency-oriented and lends itself to a cost-benefit framework more readily than other types of primary or secondary education. However, the objectives of vocational education still remain multidimensional, and the specification of a single functional relationship which incorporates these multiple dimensions is difficult. It is for this reason that the estimation of program benefits is generally so much more difficult than the specification of program costs. Often, because the problem is so difficult, it is implicity ignored, and analyses treat single dimension indexes of program performance as if they represented the entire range of multiple outputs of a program.

The output of vocational education is the acquisition of certain behavioral capabilities. The objectives of vocational education, whose fulfillment depends in some functionally related way on the acquisition of these capabilities, are several. They might be, for example,

a. Economic efficiency (Q) or the increase in economic output, other things staying the same.
b. Equity (R) or income redistribution.
c. Pure consumption (S) or the enjoyment of the process of acquiring knowledge or skill for its own sake.
d. Socialization (T) or the development of socially effective behavior.

Thus, the program objectives (W, for welfare or well-being) can be expressed as follows:

$$W = f(Q, R, S, T)$$

An indication of the relative weights and the specifications of any interactions among these separate objectives would complete the expression of program objectives. The total value of these objectives (both economic and noneconomic) could then be maximized.

The problem is, of course, that not only do we not have a unique index to measure W, we do not even have any unique index to measure any of the components of W, such as Q. Also, since certain aspects of these objective components are most certainly joint in nature, the choice of one of them or an incomplete index to represent one of them in an evaluation can lead to error in ascribing costs, since those costs which are joint in nature may be erroneously ascribed to a specific and separable objective component.

To summarize, the problem of evaluating vocational education is confounded by the fact that its objectives and its outputs are multidimensional. The proper specification of its objectives with their relative weights has never been performed. Second, a successful development, weighting and estimation of performance indexes to represent these multiple objectives has never been achieved.

The Production and Cost Functions

Without a proper specification of outputs, the specification of the process by which these outputs are produced can never be entirely satisfactory. But as a further and even more important stumbling block in the evaluation of vocational education, there is no widely accepted theory as to how vocational capabilities are imparted and what variables are critical to the efficiency and effectiveness of the learning process. Therefore, the production process is usually one which in practice is specified through trial and error by attempting to statistically "fit" various empirical relationships. This is unsatisfactory, however, since the available independent variables which can serve as candidates to explain a given learning process are limited only by the researcher's ingenuity at generating additional variables, as is demonstrated by more than one study discussed in this chapter.

However, leaving these problems aside, if educational administrators act so that they try to maximize a set of objectives of vocational education, then the production process can be specified as:

$$Y_i = f(X_{i1}, X_{i2}, \ldots X_{in})$$

where Y_i is a complex index of output performance of vocational education for the *i*th student, and the X_i's are the inputs used to produce the output of vocational education for the *i*th student.

If inputs can be expressed in money terms, costs can then be expressed as a function of the production process, as follows: $Z_i = f(V_i)$ where Z is total costs, V is program enrollment, i stands for the *i*th program of a given type. This cost function could be expressed in linear or nonlinear form, and variables other than enrollment could be added to the function to account for cost-influencing factors whose effects one may wish to hold constant. The result of estimating a total cost function will be an estimate of marginal cost—the extra cost of training one additional student.

The Linkage of Costs and Benefits

If benefits are nonmonetary, then a target level of program performance at the lowest cost (both monetary and nonmonetary) is the desirable program. Or, a given cost can be set and that program which achieves the greatest increment of improvement in output performance is the desirable program. For situations where costs and benefits are in monetary terms, the economic maximand is to maximize the present value of net benefits. However, several investment criteria exist to achieve this, such as the internal rate of return, the cost-benefit ratio, or net present value. In the real world, constraints usually exist which invalidate each of these criteria to a degree, but a discussion of these problems is beyond the scope of this chapter.

The Generality of the Model

This simple model outlines the general approach one would take to evaluate the efficiency of vocational and technical education programs. Given that objectives are clearly specified and that performance indexes to measure the achievement of the objectives can be devised, then alternative projects to achieve the objectives can be investigated. Input combinations between alternative projects will likely vary. Input combinations can be varied within a given project. The effects of both types of variation can be noted on both output and input costs. Ideally, the combination of inputs for a given cost which will maximize a given type of output can be discovered and overall educational efficiency can be improved.

Some Noneconomic Problems in Evaluation

The Specification and Measurement of Inputs

The specification and measurement of inputs into the process by which vocational capabilities are imparted to students suffer from the lack of a widely accepted theory of learning. In the absence of a theory, the problem of specifying the input variables becomes more complex. There are, however, three broad classes of variables to consider, and, of course, there are unknown interactions among them. These three sets of variables can be classified as student inputs, educational process inputs, and socioeconomic influences.

The educational process starts with students, each of whom differs with respect to characteristics which affect his ability to learn at the time he enters the particular vocational program. Students differ in relevant aptitudes, achievement, motivation, and health which create variation in their ability to learn.

The educational process in which the students are engaged has characteristics which provide the learning experience. Students are encouraged to respond in particular ways, all under the guidance of an instructor with certain characteristics. Finally, the activity takes place in particular physical and psycho-social learning environments.

In addition to the student characteristics and the specific educational process which is to be evaluated, the act of learning is affected by other experiences and conditions in the students' environment which could influence the proper identification of net educational outcomes. These experiences can take place at any time after the educational process begins and before the outcome is measured. For example, students might take a variety of other courses which differentially alter their ability to learn the content of the given educational process which is to be evaluated. Or, for instance, economic conditions could alter the availability of particular kinds of jobs after graduation. Of course, if one is able to structure an experimental model with a properly formed control group, the last set of influences may not be too serious an obstacle.

In summary, dozens of variables can be used to account for the three types of influences noted above, and thus far, little conceptual guidance exists to dictate their choice.

Specification and Measurement of Educational Outputs

The general difficulties involved in constructing a properly specified index of output have already been discussed. However, additional practical problems exist.

A benefit can be defined as any result of the vocational education process that increases individual or social well-being or welfare. This increase in welfare can be either economic or noneconomic. With respect to economic welfare, benefits occur either directly by increasing productivity or indirectly by freeing resources for alternative uses. With respect to noneconomic welfare, the educational process results in an increased level of satisfaction for those participating in the educational process.

The problem of selecting and weighting relevant output indexes becomes even more complex when programs with varied mixes of "general" and "vocational" components are compared. Typically the output indexes chosen are appropriate to vocational objectives but slight the intended outputs of the general education component; this raises serious questions about the validity of the resultant program comparison. In a more generalized sense, it epitomizes the type of bias that can result from judging any program on the basis of a narrowly conceived set of outputs, without regard for the program's concomitant effect (positive or negative) upon other desirable outputs.

Conceptual difficulties also arise when amount of education is considered as a relevant variable. When holding power or amount of further education, for example, are utilized as dependent variables, education is being treated as an end in itself. In other instances, the education variable (like holding power) might be considered an independent variable, and its ultimate and actual effect upon other outputs measured. The choice of treating the amount of education as a dependent or independent variable changes with the evaluation context and rationale, but making the choice cannot be ignored.

Finally, greater attention must be paid to the specification and measurement of developmental outputs. The effect of educational processes upon career patterns, as one illustration, should be determined. Longitudinal data are therefore required.

Estimating the Net Effects of Programs

Ignoring for the moment the very serious issues concerning the choice of performance indexes to represent benefit outputs, there is the difficult problem of identifying empirically the net effect of the program. What benefits would have accrued to a given vocational graduate or cohort of graduates had either pursued some alternative course of action? Follow-up studies which display post-program levels of performance but which provide no comparative basis for attributing performance to vocational education are of very limited value. Not infrequently, a vocational student's experience after a given educational process is compared with his state of being either before or during that process. Clearly, before-after comparisons with no control group are subject to a variety of intervening causal explanations. As a matter of fact, the economic benefits accruing to most high school and post-secondary students before graduation are low and often zero. They all usually become positive regardless of curriculum when the students enter the fulltime labor force after graduation. Yet these are the types of evidence presented in most follow-up studies of vocational graduates.

Since a person either pursues one course of action or another, and the action is irrevocable given the context of time, it is necessary to structure a control group to serve as a proxy for the alternative experience. Except where an experimental situation can be devised, it will usually be the case that the experimental and the control groups come from different populations. The choice of a control group must, therefore, always be judgmental. Since this is the case, the measures of net effect of a given educational process will be biased, often in undetermined ways. For instance, in an effort to estimate the net benefits of vocational education, one may be naturally led to compare high school graduates from the vocational curriculum with graduates from college preparatory curriculum or, more generally, graduates from a comprehensive high school. The problem is that since the objectives of the curricula ostensibly differ, they will appeal to different populations of students. Available statistical techniques can help control for the differences in characteristics between the two populations, and at present this appears to provide (in the absence of an experimental design) the best solution to the evaluator. But the statistical control is certainly not perfect, and the conclusions that can be drawn from the evaluation are consequently limited.

Another serious problem exists in that the experiences of the two populations may not be independent of each other. For instance, if one is using grade school graduates as a control in measuring the relative benefits of vocational high school education, given any level of unemployment within the socially acceptable range, the graduates of secondary vocational education may effectively exclude equally skilled but less formally educated workers from jobs currently in relative short supply. This situation would overstate the benefits attributable to vocational education.

Germane Economic Issues

With almost no exceptions, the foregoing problems apply whether one is performing an economic or noneconomic evaluation. For instance, while the specification of a production function may appear to be wholly economic in nature, the use of economic terminology should not divert attention from the fact that the specification of a production function is what is involved in attempting to identify the relevant variables affecting the learning process as well as the manner in which the effect occurs.

There are, however, certain problems involved in the evaluation of vocational education which are more economic in nature. These questions involve the estimation of economic costs as well as economic benefits; they are briefly considered below.

Opportunity Costs

In measuring the value of inputs, all costs are to be considered opportunity costs since they represent the value of opportunities which are foregone as a direct result of committing resources to one activity rather than to some other. More specifically, these costs are represented as the value of the next best alternative which could have been chosen had resources not been committed to, in this case, vocational education. In short, what is lost as well as what is gained should be measured.

Generally speaking, prices reflect opportunity costs. However, with respect to vocational education, the inputs of students are often not priced, and even when priced they do not always reflect true opportunity costs.

For instance, measuring opportunity costs for students still in secondary school requires an awareness of institutional constraints, such as child labor laws. From the private standpoint, to the extent that an individual is prohibited from working and forced to attend school up to a certain age, he perceives no real costs for he has no alternative but to go to school. Nor do his parents have any alternative but to send him to school. He cannot be employed in nonmarket or home production during those hours he is in school. However, society does experience costs; the legal prohibition of work notwithstanding, children are productive and society has the alternative of rewriting the laws and letting them work. Society foregoes this output and, thus, imposes a cost on itself. For these early teenage years there is a real problem in measuring this opportunity cost since the usual technique is to identitfy as a foregone opportunity those returns that can be earned in the next best employment. However, there are very few wage observations in the market place for younger teenage workers on which to base a judgment as to what is the proper measure of opportunity costs. Also, the wages perceived will overestimate true opportunity costs since a large increase in the supply of teenage labor would lower real wages for this age group.

Finally, the problem of measuring opportunity costs is further complicated by the occurrence of teenage unemployment. Some argue that opportunity cost estimates should be adjusted downward to reflect unemployment. Concurring with Mary Jean Bowman, we would argue that what is being measured is the commitment of resources to an activity that precludes their commitment elsewhere.[2] We are not measuring our failure to use these resources. If in some sense one attempts to measure what is put into education rather than what is foregone, one has serious difficulties in making comparisons between the educational investment input in such periods as, say, the early 1930s, as opposed to the late 1960s. The latter period approaches "full" employment so that using a "what is put in" cost concept approaches a pure opportunity cost concept. However, for the former period there is a wide divergence between what is put in and a true opportunity cost in the sense of what could have been produced.

Transfer Payments

Transfer payments create further problems in estimating input costs and program benefits. In general, a transfer payment is a payment made for which there is no compensating service rendered. From a societal standpoint, this type of payment results in the reduction of economic well-being to one group but a compensating increase in well-being to another group so that there is not a general reduction in well-being. An example of such a situation would be the imposition of taxes to pay the costs of a hot lunch program in the high schools, thus relieving parents of the direct expense of paying for the lunches of their children. For society no net increase in the costs of the high school program occurs unless the expenditures on the hot lunch programs are greater than the resources the parents would normally have committed had they had to maintain their children. Similar problems exist with the treatment of such things as increases or reductions in unemployment compensation. Increased benefits do not necessarily accrue to society because unemployment compensation or relief payments become less. These are transfer payments coming from previously produced and counted income. As such, they represent no net change in total social wealth, but simply a redistribution of wealth among members of society. Reduction in taxes used to finance such transfers should not be treated as benefits from a total societal point of view. From a particular governmental unit point of view, one might want to treat changes in these various taxes or transfers as "benefits," but one must be constantly aware of their special nature.

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[2] Mary Jean Bowman, "The Costing of Human Resource Development," in *The Economics of Education*, eds. E. A. G. Robinson and John Vaizey (London: Macmillan & Co., 1966).

Also, it is incorrect to argue that increased tax revenues flowing from the increased earnings of vocationally trained workers "repay" society for its investment in the education of the workers. Society is already repaid by the higher earnings. Certainly the governmental unit is repaid but it could get "repaid" even more efficaciously by simply raising the tax rate. From the private point of view, an individual would properly treat such changes in taxes or transfers as net additions to or subtractions from his total welfare. All this is simply to stress that there are differences in perception of benefits and costs between individuals, society, and governmental units.

Unemployment

Unemployment is another complicating factor in the measurement of the benefits of vocational education. In situations where unemployment is structural rather than cyclical, vocational education may facilitate labor force transformation and yield a high stream of benefits in social as well as private terms. However, to the extent that cyclical rather than structural unemployment occurs, it is likely that much of what may appear to be re-employment benefits is simply the displacement of less preferred by retrained workers. There is a shift in the incidence of unemployment but no net reduction. The experience of the retrained worker is not independent of that of the other untrained workers in the labor market who are seeking employment. Since there is no theoretical technique in economic analysis that allows one to distinguish between structural and cyclical unemployment, the measurement of benefits of vocational education designed to alleviate unemployment is risky business at best. The problem is further complicated by the fact that cyclical and structural unemployment interact with each other in as yet undetermined ways, making it even more difficult to determine when unemployment is structural and when it is cyclical.

Thus, it is theoretically sounder to measure the economic benefits to vocational education in a context of full employment, however full employment is defined. Under these conditions, while a reallocation of labor occurs as successive incremental units of trained labor enter the labor market, the net effect is to increase productivity and output. The reallocation of labor may cause a redistribution of income between the members of society. Whether the increase in economic efficiency implies an increase in total welfare as well as total output depends on the assumptions one makes concerning the preferability of the prior income distribution compared with the income distribution existing after a given influx of newly trained workers into the labor force. There are no simple economic welfare criteria for making this judgment.

Vocational Education as a Subsidy

Two final aspects of the measurement of the costs and benefits of vocational education need discussion since they are frequently mentioned as benefits. The first entails a consideration of the implicit subsidy of economically inefficient firms.[3] The second entails the use of vocational schools and pools of vocationally-trained workers as inducements to industrial relocation.

The usual method of establishing a course of study for a given vocational skill is to detect a shortage of trained workers in that skill. However, the shortage of workers at the wage rate offered may not represent a structural bottleneck. Instead, the shortage may mean that the firm is offering a wage rate below the going market rate for that skill. In this case, the firm is really requesting that the community or society train enough workers with that skill so that the supply of workers increases to the point where the new labor supply curve intersects the demand curve at the wage rate the firm is economically able to pay. This eliminates the shortage. A more socially desirable way for the shortage to be eliminated might be to offer wage rates equal to the market rate for that skill. If firms were forced out of business due to this action, there is reason to suspect that society perceived a more efficient alternative use for the resources. It is important to note that while some individual workers may receive a positive gross gain from this training, a higher net return could have been gained for them and for society by applying the resources elsewhere, since the firm or industry was already a high cost, inefficient operation. Thus, we are again forced to recognize that there are differences between individually-oriented and socially-oriented benefits. There is nothing necessarily wrong with subsidizing firms in this way. The only argument here is that the subsidy should be made explicit.

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[3] Of course, all training at direct public expense is a subsidy to someone. And, if one assumes that such training for an industrial society is a necessity, then, for purposes of evaluation, it is only necessary to identify who receives the subsidy and which element of society bears the cost.

Location Incentive

A benefit commonly attributed to the presence of a vocational school is that it provides a locational incentive for firms. Several aspects to this problem exist: First, if all areas have vocational schools, the net locational benefit to a given area from any given school will, correspondingly, be small. Second, the locational effect of a school is only one of several locational effects so that net benefits should be weighted by the probability of firm location, given the presence of a vocational school, holding all other marginal location effects constant. This will give an estimate of net potential benefits.

Third, given full employment, location of a firm in a given area as a result of the normal process of economic expansion results in an increase in output for society, although income redistribution effects will occur between groups and regions. If, on the other hand, cyclical unemployment exists in the economy, the tactic of inducing industry to locate in an area with the promise of a community subsidy in the form of a work force trained in specific skills can only redistribute unemployment, as well as incur the loss entailed in the stranding of a labor supply in the region the firm vacated. The amount invested in training by the receiving community represents a net loss of benefit to society as a whole.

In sum, care should be taken in attributing industrial development benefits to the mere fact of the establishment of a vocational school in a region or city. First, the net extent to which such an action is perceived as a location incentive by firms is not clear. Second, even if such a location incentive exists, care should be taken in the identification of benefits. Under easily supportable assumptions, a net loss could occur to society even though a given community achieved a gain.

Summary

The purpose of evaluation is to provide information necessary to improve the rationality of educational decisions. Evaluation can tell the developer whether a vocational program is actually resulting in the student behaviors specified at some earlier point in time. It can reveal the comparative value of two or more programs. It can indicate the impact of the program upon the community at large.

Evaluations, therefore, which merely describe the characteristics of an educational program or its outcome are of limited usefulness. When actual student or social outcomes can be compared with expected or desired outcomes, some limited judgments can be made. However, for the most effective evaluation to occur, the outcomes of two or more programs should be compared and their differences causally related to variations in program characteristics. When it is also possible to associate costs with programs of known comparative effectiveness, relative program efficiency can be determined and administrative decisions can be improved.

The remainder of the chapter will be devoted to a critical review of some typical and some major evaluative studies. The review will be divided into two sections, noneconomic and economic. Within each section, studies will be organized in what is considered to be an increasing level of methodological sophistication and potential value. The intent of the review is certainly not to depreciate the significance of the work done by many pioneers in this area. Rather, it is to use their efforts as the foundation of a constructive analysis which will be of help to future evaluators.[4]

Noneconomic Studies

Noneconomic studies are those which do not collect information about program costs and relate costs to program outcomes. Such studies can, of course, determine program effectiveness, but they are incapable of evaluating program efficiency. The noneconomic studies reported in this section are organized in three categories: (1) "Descriptive Studies," including those that describe the program and those that describe program outcomes, (2) "Studies Using Imposed Comparative Standards," including those which aid in the process of developing new programs,[5] and those which attempt to estimate an operational program's overall effectiveness,[6] and (3) "Studies Using Relative Comparative Standards." The review is not exhaustive, nor are the findings of the studies reported of particular interest. The primary concern of the section is to utilize some typical and some prominent studies to illustrate various approaches to evaluating occupational programs and the nature of the problems that are commonly associated with each of the approaches.

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[4] For comparison and elaboration, the reader may wish to refer to other recent reviews of evaluation studies (Coster and Ihnen, 1968; Sharp and Krasnegor, 1966; Warmbrod, 1968).

[5] Commonly referred to in the literature as formative evaluation.

[6] The term *summative evaluation* is frequently used to describe these studies.

Descriptive Studies

The descriptive studies reported were intended by their authors to provide program evaluations. They are classified here as descriptive, however, either because they fail to provide valid criteria for evaluation or because they lack the comparative base required for making evaluative judgments.

Perhaps the most typical application of vocational program "evaluations" has been for the purpose of accreditation. Program operators, consultants, or supervisory personnel observe and rate certain characteristics of a program according to their own or some other set of proposed standards. For example, a review of 146 accreditation team reports (Stanton, 1967) revealed that the accreditors were judging vocational program quality on the basis of such things as (a) the use of advisory committees, (b) interagency, intraschool, and industry-education coordination, (c) effective placement and follow-up procedures, and (d) continuous evaluation. As recently as 1968, a publication endorsed by the U.S. Office of Education (U.S. Department of Health, Education, and Welfare, 1968) suggested that the principal technique for evaluating vocational programs should be self- or expert ratings of such program variables as administrative and educational leadership, program organization, etc. Product evaluation through student follow-up was only implied as a desirable process in this publication. It is to be expected, then, that many states would feel justified in adopting a similar process of rating program characteristics when developing their own evaluative systems. Florida and Pennsylvania provide two such examples (Florida, 1968; Reynolds, Grobman, and McGee, 1967).

The descriptive approach may be justified only if it is essential to make immediate judgments about the characteristics which are believed to constitute "good" programs. In doing so, however, close relationships between those characteristics and the actual behavior of students and former students are being assumed. Such relationships have *not* been shown to date, so we must not delude ourselves into believing that present judgments are necessarily valid.

Next to describing vocational program characteristics, the most frequently employed evaluative technique is the "one-shot" description of a group of vocational graduates. For example, studies report that since 1951 an average of approximately 65 percent of the day trade graduates and 85 percent of the cooperative program graduates have been placed in the occupation, or a related occupation, for which training was received by the fall of the year following graduation (North Atlantic Regional Study Committee, n.d.). The implied judgment is that the programs were "quite successful." In another instance, students who completed three or more years of high school vocational agriculture were followed-up after eight years (Priebe, 1968). Of the 70 percent who responded, 57 percent were in "agriculturally-related" occupations. Priebe argues that the figures reveal the success of the vocational agriculture program. Here lies the greatest weakness of these studies. Since no reasonable comparative base was provided for judging the outcomes of the programs, it can also be argued with equal forcefulness that the results were unsatisfactory. Further, is it reasonable to ascribe behavior eight years after graduation to school experiences without considering the influence of intervening variables? This kind of study must, therefore, be classified as descriptive; it does not utilize any reasonable index of what constitutes "success" for evaluative purposes.

Studies Using Imposed Comparative Standards

Evaluation is required during the process of developing or improving a program. In this formative role, evaluation attempts to answer the basic question: How well is the program accomplishing what it set out to do? The comparative standard implied by the question is the expected, hoped-for outcomes stipulated in advance by the program developers. These are the target levels of performance which are pursued by the program. At least two such large-scale program development-evaluations are currently underway in industrial arts education. These, and a diagnostic assessment of MDT programs, are summarized as examples of this approach.

The evaluation of the Industrial Arts Curriculum Project instructional materials (Blum, 1968) takes three forms: First, the completeness and validity of the educational materials are assessed. Second, participating teachers provide daily written and weekly oral opinions about the (a) time allocation, (b) student appeal, and (c) appropriateness of the materials. Third, achievement tests are administered to students approximately every three weeks. Assuming that the test contents are valid, reliable, and have diagnostic value, the basic problem with this procedure lies in deciding when the test results indicate the need for (a) further developmental revisions to improve program effectiveness or efficiency, or (b) revision of the hoped-for target level of performance. The cost of additional program changes is another factor that must be considered. Comparative data gained from experimental or quasi-experimental situations are obviously needed by the developer in this kind of situation to assist in making reasonable judgments about acceptable performance.

The evaluation of the American Industry Project is more elaborate

(Nelson, 1968). In addition to teacher opinions, the evaluative system for this project obtains subjective data from students and administrators, as well as from indirect measures (for example, an inspection of the condition of workbooks when they are returned). Test data on student aptitude and reading abilities are also collected to help interpret outcomes. But perhaps the greatest apparent difference between the Nelson and Blum projects lies in their use of objective achievement data. The American Industry Project is making a deliberate attempt to set up experimental or quasi-experimental situations wherever possible, using control groups and before-after material revision comparisons. This information, used with knowledge about the interrelationships among content and the expectation of diminishing returns from repeated revisions, provides the developers with some realistic basis for assigning priorities to those parts of the curriculum where revision is likely to have the greatest impact. The stipulation of predetermined target levels of performance becomes less important using this approach.

A diagnostic evaluation, conducted for the primary purpose of improving operational MDT institutional training programs, was reported by London (1967). He examined the pre- and post-training experiences of 518 graduates from fifty-one classes in nineteen different occupations. Both employers and trainees were interviewed six, twelve, and eighteen months after the completion of training. In addition to collecting wage and employment history data, information was secured from former students about their reasons for not working, or not working in the occupation for which they received training. Based upon these data, the researcher made recommendations for program revisions. The technique does provide diagnostic clues for hypothesizing improvements, provided the goals of the program are sufficiently consistent and carefully delineated. For example, conflicting implications could well be drawn from disparate reactions of employed trainees, unemployed trainees, and employers unless the investigator had previously decided whose opinion really counted. In this particular study, for example, one might ask why the people who left the program before completion were not interviewed? Did the investigator consider the number of dropouts an unimportant factor in achieving the overall goals of the program, or that their reasons for dropping were unimportant? Finally this study draws conclusions which imply the further expenditure of resources on MDT programs. Even though this recommendation may be correct, the data in this study cannot support it as the study is currently formulated.

In addition to evaluation for program development (formative) purposes, imposed comparative standards have also been employed in summative evaluations to determine the overall impact (or macro-level of effectiveness) of programs. Two of these efforts probably comprise the most important studies conducted in the history of vocational education—the so-called Willis Committee Report (U.S. Department of Health, Education, and Welfare, 1963) and the Essex Committee Report (Subcommittee on Education, Committee on Labor and Public Welfare, United States Senate, 1968). Both were nationwide evaluations of federally-financed public school vocational programs.

The Willis Committee attempted to compare the impact of the national vocational program with its perception of the occupational education needs of the people and of the economy. The Committee found the vocational programs wanting in terms of size, scope, and sensitivity to the changing needs of both the labor force and various segments of the population. On the other hand, the Committee was somehow convinced that graduates and society do benefit economically from publically-operated vocational programs because they recommended a nationwide expansion. This recommendation was made in spite of the fact that:

> Lack of data and tangible evidence, it must be admitted, make it difficult for laymen or professionals to fully evaluate the national program of vocational education. This lamentable fact was stated by the Advisory Committee on Education in 1938; it is still true.
>
> Objectives and standards are quite valueless if, as criteria of appraisal, they cannot be compared with data that indicate whether, or how efficiently, purposes are being achieved. . . . There are no data which permit nationwide quantitative and qualitative analysis of this [placement] vital aspect of vocational education. (pp. 207-208)

Five years later, the Essex Committee used the goals of the Vocational Education Act of 1963 as a standard by which to assess the national impact of the public vocational education program. After reviewing official reports and the results of limited research, and hearing testimony, the Committee concluded that, in general, there were discernible signs of appropriate program redirection and growth to meet the needs of people and the occupational mix, but the implementation was somewhat slower than hoped for. In particular, it was noted that:

> Despite the long foreknowledge of the 1966-67 assessment, no significant studies were undertaken with adequate lead time to produce data for the Council's needs. The regular reporting system was inadequate for the purpose. . . . The only common measure of results is a report of uncertain validity from the vocational teacher in September on the placement of students who completed a course the previous spring. (p. 30)

As a direct outgrowth of the Essex Committee Report, the Center for Research and Development in Vocational and Technical Education (Starr, 1968) is currently attempting to design a system for statewide evaluation of vocational programs. While changes are still possible in the system, it presently focuses primarily upon comparing the size and scope of the vocational program with the needs of the people to be served and with the occupational requirements in the state. The system was field-tested during the winter and spring of 1968 in Colorado and Kentucky, where it became apparent that some revisions in the data collection techniques would be required. In addition, the designers of the system recognize the need for providing a companion procedure for obtaining the labor market data that will comprise an adequate comparative standard. Until this is developed, the evaluation system will be incomplete and ineffectual.

The selection of appropriate outcomes to serve as criteria for the success of vocational programs is critical to the evaluative process. Far too little study has been devoted to this value-laden task. Hamlin (1967) has stressed the critical importance of involving citizens in the evaluative process, especially at the level which establishes objectives and casts the roles of the various public educational institutions and agencies. Byram and his associates (Byram and McKinney, 1968) have engaged in two projects and are presently supervising a third, which involves citizens in all phases of the evaluation of occupational education programs in small- and medium-sized school districts. The phases of the projects include (a) setting goals and attainment standards, (b) determining program outcomes by contacting former students, employers, and citizens in the community, (c) evaluation, (d) making recommendations to decision-makers, and (e) reassessing programs, goals, and standards. Citizen involvement at the local and state level apparently has much to recommend it; the public relations value and the impetus that can be provided for constructive change are positive results. On the other hand, the focus on independent local evaluations has many shortcomings, including the problem of intercommunity comparability of findings and unnecessary duplication of effort. The basic problem of all evaluations which utilize arbitrarily imposed comparative standards remains: How reasonable are the attainment standards, and at what point is the discrepancy between actual outcomes and outcome standards a legitimate cause for dissatisfaction or action?

Standardized achievement tests provide measures of student outcomes that can serve as comparative standards. Since their past use has been primarily to compare actual student achievement with some expected or cut-off (imposed) level, the status of testing will be discussed very briefly in this section. There is no doubt that the development of tests to predict quality of on-the-job performance would be a tremendous boon to the evaluative effort. Unfortunately, we are nowhere near that desirable end.

Since 1958, Ohio (Ohio State Department of Education, 1967) has been using committees of vocational teachers and supervisors to develop achievement tests. Tests with subparts are now available for seven industrial occupation areas. The test manual reports very high split-half reliabilities for the full tests, but fails to report subpart coefficients, even though the manual advocates the use of subpart scores. More importantly, the only two validity measures reported are concurrent correlations with teacher's grades in machine shop (.35) and auto-mechanics (.39) for senior students. No correlation data are provided with on-the-job performance; thus the tests provide no legitimate basis for evaluating the program.

Another form of standardized testing is licensure examinations. In a recent review of state and national licensing examinations, Shimberg (1968) found that:

> Most boards felt that they were doing a sound and conscientious job of evaluating applicants, and they seemed to be completely oblivious to the inequities that might arise as a result of the procedures used. . . . The examining procedures used for licensure in most occupations do not, at the present time, offer much promise as a basis for evaluating the outcomes of vocational education. (p. 13)

Studies Using Relative Comparative Standards

Comparing the qualitative outcomes of two or more programs provides a relative standard for making summative evaluations. This approach has the advantage of permitting judgments and actions to be based upon the relative effectiveness of alternatives to achieve common ends. But the advantage of the approach is dependent upon the use of satisfactory techniques to adjust the outcomes of the programs for the effect of possible differences between the students and relevant labor market conditions.

Ahrens (1966) compared two groups of graduates of a college agricultural engineering curriculum—those who had and those who had not taken a high school vocational agriculture program. He found no difference between the groups in college performance, but more of the alumni of high school vocational agriculture programs stayed in the state immediately after graduation from college; those who left the state later did so for better employment, and as a group they had higher incomes. Ahrens attributed these differences to the high school vocational program despite other evidence that the two groups also differed in such things as family background and their reasons for entering college. This is a classic case of attributing a causal relationship to a simple correlation—specifically, of ignoring the influence of differences in student input upon program outcomes.

Attacking a somewhat parallel kind of problem, Moss (1966) attempted to determine the influence of prior senior high school industrial arts experience upon grades earned in selected post-high school trade and technical curricula. The independent variables included (a) amount of industrial arts, (b) grades earned in industrial arts, (c) the kind of industrial arts courses taken, and (d) the objectives of the industrial arts courses taken. Twenty-seven student variables, potentially related to the criterion measure but independent of senior high school experience, were used to adjust the criterion variable of post-high school grades before the effects of the independent variables were determined. This was one of the first reported attempts to employ regression analysis in a causal-comparative study. Recently developed techniques (Bottenberg and Ward, 1963) now make possible more precise applications of the regression model.

When the relative comparative base used is the before and after performance of trainees, additional problems are encountered. Ehresman, Evenson, and Fischer (1968) followed up a large group of MDT graduates who had been in the labor market for at least one year. Information about employment status, occupation, wage rate, and place of employment was obtained. Since all the former trainees had been unemployed at the time of their entrance into the program, and as the respondents had a very high current employment rate with wages above the untrained worker level, the investigators attributed the entire absolute economic gain to the program. The accuracy of this conclusion is subject to several possible historical and sampling errors, such as: Had the employment opportunity picture changed during the year? Would all the trainees have remained unemployed even if the program had not been available? What happened to the program dropouts?

The problem of making an appropriate comparison becomes even more complex when different groups of students are compared at different points in time. Haines et al. (1967) contrasted the post-high school employment and educational experiences of 1962 and 1965 cooperative education graduates ten months after they left school. The direct comparison yielded conceptually sound conclusions only if it is possible to assume that there were no differences in the relevant characteristics of the two student groups or in the labor market conditions in 1962 and 1965. This is difficult to assume. Another equally prevalent problem is illustrated by the response rate (54 percent) obtained to the mailed questionnaire in the study. It is possible that a low percent return is inevitable, but some knowledge of the nonresponse group is vital. Repetitive random sampling and comparisons among the responses received at different stages of the follow-up procedure should be employed to estimate the direction of possible nonresponse bias.

The most massive follow-up effort to date has been reported by Eninger (1965, 1968) in two studies involving the product and the process, respectively, of high school trade and industrial education in the United States. In the first study (The Product), data were gathered from a well-stratified sample of male T & I graduates from vocational and comprehensive high schools, and a sample of academic graduates from the same comprehensive schools, for the years 1953, 1958, and 1962. Despite an attempt to sample nonrespondents, the overall picture presented by the findings is not clear because the analysis is restricted to a comparison among graduates without controlling for intervening sociodemographic characteristics by means of multiple regression analysis. In addition, school leavers from the programs were not considered by the study. A wide range of occupationally- and nonoccupationally-related outcomes were utilized; some were taken directly from responses to mailed data collection instruments while others were derived from the responses. The questionnaires were carefully constructed, but the reliability of individual responses is unknown. (This is always in question when information on wages and opinion about degree of job relatedness to training is solicited.) The findings of the study revealed no educationally significant differences in outcomes between the T & I graduates from vocational and from comprehensive high schools. When these graduates were combined and compared with the academic graduates who did not go to college, it was found that the academic graduates (a) took slightly longer to get their first job (probably explained by the fact that vocational graduates had greater help from the school in obtaining an initial job), (b) had a higher percent (4-9 percent) of unemployment time after graduation, but (c) enjoyed a greater rate of earnings progression. There were no initial or current wage rate differentials of any import between the two groups. The fact that a much higher percentage of academic than of vocational graduates went to college was reported, but its implication for evaluating the respective programs was not developed. Finally, to repeat, a failure to use regression analysis to control for such things as differences in sociodemographic characteristics and year of graduation makes all the above results ambiguous.

The second report (The Process Variables) includes a reanalysis of some of the data of the first report to show that T & I graduates who entered and stayed in the field for which they were trained did somewhat better on the occupationally-related measures of outcome than did the academic graduates who entered employment immediately after high school graduation. On the other hand, there were no appreciable outcome differences between the academic group and the T & I graduates whose first and current jobs were outside the field of their training. The major thrust of the new data presented in the second study was fairly well confined to the 1962 graduates. It compared the same three groups of students on, and related their occupational outcomes to, student characteristics and such process variables as (a) teacher characteristics, (b) curriculum and related data, (c) general and shop facilities, (d) instructional methods and equipment, (e) counselor and counseling services, (f) placement services, and (g) school administration and related data. While a great deal of useful descriptive information was reported, very few educationally important correlations were found between process and product (outcome) variables, and no information is presented on the structural relationships among the process and the product variables. The investigator, however, considered that some significant relationships had been revealed: (a) the greater the school effort at placement, the higher the percentage of graduates who entered the occupation for which they were trained; (b) vocational schools tended to give greater emphasis to placement than did comprehensive schools; and (c) placement in the occupation for which trained was slightly related to higher individual economic benefits. On the basis of these relationships, Eninger recommended that all schools should focus their efforts on improving placement.

Some of the methodological problems of the Process study can be revealed by examining the questionable nature of Eninger's principal recommendation, which assumes a causal relationship between placement in the trade for which training is received and improved outcome. The study did not show such a causal relationship for the following reasons: First, placement may influence the occupation in which employed, but labor market conditions determine employment opportunities and wage rates and these conditions vary by occupation, time, and place. No data were collected on labor market variables, nor were the kinds of occupation in which academic graduates were employed even reported. Second, if differences in wages and employment still existed after considering variations in labor market conditions, they may be explained by the fact that the students in the study who entered the occupations for which they were trained had higher shop grades and therefore an actual productive superiority over their peers. Third, the theoretical framework for the study postulated that student inputs, the educational system, and labor market conditions *interact* to produce vocational outcomes. The analysis employed was not consistent with the theory. The result of these factors interacting was never determined. Had the outcomes been adjusted for variation in student inputs (which were known) and labor market conditions (not considered), it is possible that meaningful differences in the qualitative aspects of the educational system (process) might have been revealed. Fourth, as the investigator recognized, many of the process variables employed were easily measured but were not logically related directly to the outcome variables. Finally, the very mass of process data collected, because they were not based upon any explicit theory of instruction, made appropriate analysis techniques very difficult to employ.

Bjorkquist (1968) used a quasi-experiment to compare a job-oriented and a field-oriented MDT institutional program. While the specific differences between the curricula were not entirely clear, the job-oriented program seemed to provide an integrated experience focused upon actual job requisites in tool design technology. The field-oriented program in mechanical technology contained a wider diversity of basic subjects taught as separate courses. The students who were eligible for MDT programs were (a) high school graduates, (b) about one standard deviation above the norm on most measures of the GATB, (c) familiar with mechanics and machine operation, (d) about 24 years average age, and (e) volunteers for the retraining program. Despite permitting students to select the program of their choice, the two groups appeared to be about equal in GATB measures and amount of post-high school education, but the job-oriented students had somewhat different interests, lower numerical ability, and more mechanical work experience. During the conduct of the programs the job-oriented group experienced a much lower dropout rate, partially because of differences in program policy, but also presumably because of curriculum requirements in relation to the interests and abilities of the students. Three follow-ups of graduates over a two-year period revealed no differences between them in terms of (a) social class identification, (b) job responsibility (level and nature), (c) rate of unemployment, or (d) employer's ratings of performance. The field-oriented program graduates, however, earned higher wages and made more geographical moves, but the job-oriented graduates indicated greater satisfaction with their work. Bjorkquist did not feel the results of the study were conclusive, particularly in light of possible initial differences in the student groups, follow-up data that were unadjusted for geographical differences, and the problems involved in obtaining comparable data on job performance.

Summary

In addition to their lack of cost data, the studies in this section reveal, to varying degrees, certain inadequacies as program evaluations. First, evaluations based upon ratings of program characteristics make assumptions about the relationships between those characteristics and the behavior of former students which are not tested with appropriately specified theoretical models. There is a conspicuous lack of rationale and a theoretical model for the selection and weighting of outputs and the development of useful production functions. At times, program output and input indexes seem to be selected primarily on the basis of availability of data. In other cases, potentially meaningful and available information, for example, dropouts and further education, are ignored. Second, studies that attempt to measure program outputs by means of follow-up techniques must also provide meaningful comparative standards so that judgments about net program performance can be made. Predesignated program targets can serve this purpose for certain kinds of evaluation, but at our present level of sophistication the realism of those target-goals is often suspect. For most evaluations, therefore, contrasting the outcomes of two or more programs provides the most satisfactory comparative standard. Third, similar kinds of outcomes from two or more programs can be appropriately compared only after differences in their students and other socioeconomic factors are taken into account. This requires that control groups or other statistical techniques, such as multiple regression, be employed.

But to conclude solely on a critical note would not be justified. Within the past few years the technical improvements in evaluation have been great. Many recent noneconomic studies reflect an increasing level of methodological sophistication. The progress, however, is uneven; researchers in the field display great variations in their knowledge about satisfactory procedures.

Economic Analysis

Economic evaluations collect information on both input costs and the benefits from program outputs. They relate costs and benefits to each other, usually by specifying the additional increment of benefit which is received for an extra increment of cost. This relation of marginal benefit to marginal cost is necessary if one wishes to evaluate the relative worth of competing alternative programs or alternative ways to achieve the same benefits for a given program. A relation of average costs to average benefits would be relevant in those cases where an administrator was trying to decide whether or not to institute a program in the first place. If the long-run average benefits are not sufficient to cover the long-run average costs, then the initiation of the program would not be desirable on economic grounds.

This section deals first with the few cost-benefit studies of vocational education. It then treats as a group the many cost-benefit studies which have been done for MDTA and ARA retraining and similar types of training programs. Only the major studies will be treated.

General Critique

The preceding section of this chapter indicated a serious lack of carefully structured methodology in the noneconomic analyses of vocational education. The overall judgment of this section is similar. In some cases the methodological shortcomings are almost identical to those previously noted. In other cases, the shortcomings are peculiar to the economic nature of the analysis.

One of the most serious shortcomings of economic analyses lies in the failure to specify properly the production function of vocational education programs. Another shortcoming lies in the fact that the cost functions which are estimated assume that the most efficient production process is in use, when in fact there is no knowledge of the relative range of production possibilities or where the given production process under investigation fits into the range of alternatives. The problem is further compounded by the fact that numerous studies have attempted to estimate production functions for school systems or school districts, but no comparable effort has been made for vocational schools. And, indeed, even the efforts for educational systems have been less than satisfactory, generally showing that there is only a slight relationship between extra educational inputs and increases in educational output as measured by standard performance tests.[7]

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[7] See, for instance, Jesse Burkhead, Thomas Fox, and John Holland, *Input and Output in Large City High Schools* (Syracuse: Syracuse University Press, 1967); James S. Coleman et al., *Equality of Educational Opportunity* (The Coleman Report), U.S. Office of Education (Washington: U.S. Government Printing Office, 1966); Herbert J. Kiesling, *High School Size and Cost Factors*, U.S. Office of Education, Project No. 6-1590, March 1968. The controversy over the Coleman Report in the *Journal of Human Resources* for the Spring and Summer issues, 1968, is very instructive. Also, the forthcoming National Bureau of Economic Research volume on the *Conference on Research in Income and Wealth*, November 15-16, 1968, Madison, Wis., is of invaluable use to gain insight into the issues involved here.

A second major criticism is that the cost-benefit studies of vocational education estimate only a gross relation between inputs and outputs, usually measured in money terms. The costs are typically expressed as some average cost or as a constant marginal cost, while the benefits are also expressed as constants and are usually measured as differences between averages. A ratio of these constant costs and benefits, sometimes discounted and sometimes not, is then calculated. The explicit advice to the administrator or educator is then to seek the highest ratio of a set of cost-benefit ratios and expend additional funds there.[8] By using a ratio of two constants, the whole notion of diminishing returns to scale is ignored. The extra cost of training an additional student is most certainly going to increase as more students are added to a program unless the program has a significant amount of excess capacity. Further, the extra benefits to be gained from training an additional student are not likely to be constant over all ranges of output. For instance, a given vocational program could, in the short run at least, glut the market with persons of a given skill. And, other things equal, the long-run effect of this glut would be to lower the wage rates paid to workers in that skill. Other things equal, as more and more students are trained, the wage rate and similar benefit indexes for the skill would progressively fall. Thus, what our present studies can say, at best, is that some funds should be shifted toward the programs having the higher cost-benefit ratios. Given the nature of their estimates, the studies cannot specify exactly how much funds should shift, nor should they even imply that relatively large amounts should be shifted, given the information they provide.

Studies of Vocational Education

The cost-benefit studies of vocational education which now exist are all of the case study group. No nationwide economic evaluation of vocational education has been made, though the Eninger study and a study currently underway at the University of Wisconsin could become so with the collection of appropriate cost data from the sample of schools employed by each study. The quality of the studies varies widely, but they are generally more valuable for what can be learned from their methodology than for the economic data they have produced.

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[8] See comments by John E. Brandl on the paper by Samuel Bowles, "Towards an Educational Production Function," in the series of papers of the National Bureau of Economic Research, *Conference on Research in Income and Wealth*, November 15-16, 1968, Madison.

The Corazzini (1968) case study of Worcester, Massachusetts provides a summary of the distinctions Becker has made between general, firm-specific, and industry-specific training.[9] For a given occupation, general training is training which raises a student's productivity, and hence his wage rate, equally for all firms. With this type of training any apparent subsidy to an industry or firm would actually be a subsidy only to the individual receiving the training. With firm- or industry-specific training, however, a person's productivity increases, and hence wage increases, are specific to that firm or industry. If he were to leave employment with the firm or industry he would suffer a reduction in his wage rate. Public subsidies to such types of training would represent subsidies to the firm or industry. This makes it clear that the identification of public subsidies to individuals or firms is not an obvious matter.

Corazzini also discusses the difficulties of establishing a suitable control group and argues that students in the general rather than the academic or college preparatory curriculum would be the appropriate group of students to compare with vocational students. However, none of these groups is ideally suited for intercomparisons. The objectives of the several curricula differ considerably. Thus, even after adjusting for student differences in psychological and sociodemographic characteristics and estimating the option value of additional education to each of these curricula, the fact still remains that the objective functions of each of the different curricula diverge so that simple cost-benefit comparisons among them on the basis of simple indexes of earnings or employment are not justified. The problem of the control group arises because of a basically restricted orientation of the cost-benefit studies. They have attempted to demonstrate that given curricula are more or less efficient in pursuing a narrowly conceived economic goal. The objective functions of the curricula differ, however, which means that some curricula are often being evaluated by incomplete or inappropriate criteria.

The cost data in the Corazzini study are quite adequate, and the appropriateness of imputing opportunity costs while the student is in school is made evident. However, capital costs are prorated in the study. This procedure is incorrect since the costs are joint with respect to different cohorts of students, making Corazzini's estimates of total and average costs contain an arbitrary element in them.[10] The estimation of benefits, which is based only on differentials between starting wage rates, is inadequate for the task posed in the study. Also, no attempt was made to control the influence of variations in relevant student characteristics except sex. Thus, the economic conclusions of the study are highly questionable and should be considered only suggestive.

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[9] For the complete analysis, see Gary Becker, *Human Capital* (New York: Columbia University Press, 1964), pp. 18-29.

There is a special analysis in the Corazzini study of the potential benefits of vocational education in terms of its propensity for dropout reduction. At least three criticisms of this analysis are called for. First, it is not at all clear that the goal to reduce dropouts has any different weight in the objective function of the vocational high school than it has in the comprehensive high school. There is no reason to assume that any one curriculum is unique in its dropout-saving propensity or concentrates more of its resources in this effort. Second, the gross dropout rates of curricula are contrasted with no control for possible differences in student or other intervening variables. And third, the formulation of the theoretical model is faulty since what is needed to estimate dropout reduction for each curriculum is the probability that a potential dropout will switch to a more hospitable curriculum, and then, having switched, an estimate of the probability that he will graduate. This joint probability of dropout reduction can then be used to weight the benefits of each curriculum. In the absence of this type of data, Corazzini made a set of alternative assumptions which are clearly unrealistic. He assumed, for example, that *everyone* who graduated from the vocational curriculum was saved from dropping out of school; that is, had these students not entered the vocational curriculum, none of them would have graduated. A variation on this is his alternative assumption that those who graduated and found jobs in training-related occupations were saved from dropping out. Neither of these assumptions is realistic. In summary, then, the most useful aspect of the Corazzini study is its discussion of methodology.

Taussig (1968) has done a case study dealing with vocational education in New York City. As with the Corazzini study, the discussion of conceptual issues is the strong point of the analysis. While dealing with the issue of appropriate control groups, Taussig fails to mention explicitly that the objective functions of the academic and vocational high schools in New York City may differ considerably.

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[10] For further discussion on the inappropriateness of allocating joint costs, see Roland N. McKean, *Efficiency in Government Through Systems Analysis* (New York: Wiley, 1958), pp. 44-46. See also Charles J. Hitch and Roland McKean, *The Economics of Defense in the Nuclear Age* (Cambridge, Mass.: Harvard University Press, 1960), pp. 379-85.

His discussion concentrates mainly on the significance of the sociodemographic differences which exist between students of the academic, general, and vocational curricula.

The benefit measures in the Taussig study are based on entry wages and an employment period of four months after graduation. What is really needed is a considerable labor market history in order to appropriately compare the earnings and employment experiences of the graduates from different curricula. Thus, the Taussig measures can best be viewed as tentative. He has much too little evidence to conclude that the "direct market benefits from high school vocational education in New York City have been disappointing."

Taussig's cost estimates, like Corazzini's, are on firmer ground than the benefit estimates, but he too incorrectly prorates capital costs. Taussig estimated that the extra direct schooling costs of producing a vocational high school graduate in New York City are about $2,200, while Corazzini's estimate was approximately $2,700. Unfortunately, the different modes of estimation do not allow any direct comparison between the two results.

Finally, Taussig also gave attention to the issue of dropout prevention. He correctly pointed out the inadequacy of comparisons between curricula based on gross dropout rates. As suggested above, controlling for student characteristics is a minimum first step in making such comparisons. Lacking these data, Taussig limited himself to a discussion of the external benefits to be gained by society through a reduction in dropouts.

The study conducted at the Pennsylvania State University (Kaufman et al., 1967, and Hu et al., 1968) is a case study of vocational-technical high school graduates in two major eastern cities and one midwestern city. An analysis of cross-section cost data from the high schools of two of the three cities involved in the study permitted an analysis of vocational education in terms of its investment value.

The total cost functions were based on current costs only. The authors argued that most of the capital costs involved were joint in nature and could not be prorated among educational cohorts. However, they did prorate current costs among the different grades in the high schools. This occurred when they regressed annual average daily attendance against total current costs for the sets of schools in each city. They estimated that the extra (marginal) cost of educating an additional vocational student in average daily attendance was $464 in one city. The contrasting marginal cost for an additional student in average daily attendance at the comprehensive high schools was $304. For the second city in the study these were, respectively, $386 and $270.

Benefit data were obtained from a mailed questionnaire sent to the 1959 and 1960 graduates of the comprehensive and vocational-technical high schools. Earnings and employment data were based on a six-year post-graduation follow-up of labor market experience. In estimating net benefits to vocational-technical education, the intervening influences of such factors as IQ, sex, race, marital status, father's education, and the condition of the labor market at the time of graduation were controlled. The benefits to vocational-technical education were found to be large—about $343 per year over the six-year period in one city, and $643 per year in another. The benefits to the graduates of the vocational-technical program in the third city, where cost data were not obtained, were not statistically significant.

This study also assumed that the objective functions of the academic or college preparatory curriculum and the vocational-technical curriculum were the same. A recognition that this is not exactly correct was made early in the study, but the ensuing analysis implicitly assumed that the objective functions were the same. The general problem led the authors to eliminate from the analysis all high school graduates who had any post-high school formal education. Before-tax earnings after graduation, one of the measures of benefit in the study, may nevertheless have different weights in the objective functions of the two types of graduates. Therefore, a simple comparison between the two sets of earnings may not be a completely valid measure of relative program effectiveness. These criticisms aside, the authors estimated a very high rate of return to vocational-technical education for the two cities, ranging from 11.5 to 43.1 percent depending upon the assumptions made. This is in contrast to the studies by Taussig and Corazzini which came to essentially the opposite conclusion.

Finally, the authors of the Pennsylvania study listed a series of constraints on the interpretation of their empirical findings. They state:

> . . . [This investment analysis] holds strictly only for the study sample of non-college attending high school graduates of City A. It assumes that the sub-samples of vocational-technical and non-vocational-technical high school graduates are identical in every respect; that every student member of the total sample is indifferent between vocational-technical and non-vocational-technical senior high school curricula on non-economic grounds (there are no differential consumption benefits to be gained by a student pursuing one curriculum rather than another); that neither of the two subsets of graduates intend to go to college (the option value of higher education is zero for both groups); and, finally, that monetary benefits are all that matter. (p. 146)

Thus, the scope of the study, in spite of the student population it originally dealt with, is limited.

The final vocational education evaluation to be considered is a study of post-secondary technical education by Carroll and Ihnen (Carroll, 1966, and Carroll and Ihnen, 1967). It is a carefully structured case study of the 1959 and 1960 graduates of a single technical high school in Gastonia, North Carolina. The earnings and employment of matched pairs of graduates from forty-two high schools in North Carolina are compared. Controls for sex, race, high school of graduation, high school grade average, mother's education, and similar variables were instituted. The benefits to technical education were found to be $39 per month, and expanding over the four-year period covered by the labor market history of the sample members. Total costs were $7,425 for the two years of training and include both the direct expenditures on education ($2,228) and opportunity costs of foregone earnings ($5,197). These cost estimations highlight the findings of studies of the economic benefits to higher education—that foregone earnings represent a higher proportion of costs than do the direct outlays on education. From an empirical perspective, the Carroll and Ihnen study is probably the most thorough of those surveyed in this section. The major grounds for criticism lie in the true degree of comparability between the matched pairs of graduates.

Studies of Manpower Training

Rather than treating the analyses of manpower training individually, particular problems in measuring benefits and costs in the analyses will be discussed in the following paragraphs.

First, as with the studies of vocational education, there is the problem of identifying program benefits. Some studies fail to recognize that the net and not the gross effects of a training program are what must be measured (London, 1967). Much of the government-collected data, such as job placement ratios, are also of this gross nature. Some type of control or comparison group, fitted to the needs of the analysis and the hypothesis being tested, has to be devised.

The choice of an appropriate control group is a difficult one; yet the strength of the subsequent analysis depends heavily on its nature. Considerable variety exists among studies in the choice of control groups. For instance, studies of MDTA and ARA retraining, as well as of state training programs, have used persons rejected from the training program, persons who were accepted but who did not report for training, persons who dropped out before finishing, or persons unemployed about the time trainees were undergoing instruction (Solie, 1968; Main, 1968; Cain-Stromsdorfer, 1968; Page, 1964). In addition, Borus (1964) used trainees who completed the program but did not get training-related jobs. All of these groups have some relevance as a comparison group except for the rejects, whose use appears totally inappropriate due to the differences in sociodemographic and psychological characteristics between them and the trainees. But problems arise even with dropouts, those who were accepted but did not report, and the recently unemployed. Each of these groups has ambiguous biases. For instance, in the case of the person who is accepted but who fails to report, is he not undergoing training because he feels he can get a job on his own? If so, he would be more aggressive and successful in the labor market than the trainee. Or does he fail to report because he fears failure in the training process? The first interpretation would create a downward bias in the measure of net benefits; the second would create an upward bias. The same questions arise with respect to the dropouts and recently unemployed.

The use, as a control, of trainees who did not get training-related jobs gives a measure of the return to trainees who get training-related jobs, as distinct from those workers who were simply employed more consistently after training. This is a relatively limited concept of the net effect of training, especially in light of the controversy over (1) what is it which is really imparted by retraining, and (b) what constitutes a distinct job type or class.

An additional shortcoming of all of these studies is that they fail to measure most secondary economic benefits and all noneconomic benefits. Such measurement is difficult, however, since there is no logical cut-off to the enumeration of such benefits and the risk of double counting is great. In any case, at this stage of our technique it is probably best that the economic analysis be kept as simple as possible.

Another issue which serves to complicate the measurement of benefits stems from the conceptual difficulty of identifying the nature of the unemployment which is being combatted. Borus argues that the unemployment which training sets out to correct in Connecticut is completely structural. Thus, he counts the entire earnings of the employed trainee as a benefit. Surely this is too extreme a position. First, there is not even a precise theoretical definition of structural unemployment; it is almost entirely an empirical concept. Its nature most certainly interacts with cyclical or aggregate demand unemployment, and attempts to unravel the two types have not been successful.

The likelihood of a person becoming or remaining unemployed and the likelihood of an unfilled job remaining unfilled are probabilistic and not absolute situations. There is interaction among all workers in the labor market, and it must be assumed that no control group devised in a natural experiment is unaffected by the experience of the group of trainees. When a trainee is placed in a job, the probability that a nontrainee can get that job is zero. Prior to that time, both had a probability greater than zero but less than unity of getting the job in question. It may not be the training at all—that is, marginal productivities between trainee and control may not even differ—but the identification and placement services of the training process which gives the trainee group an advantage over the control group. Thus, Borus's benefit estimates are overstated considerably.

Borus also adds in as a benefit the multiplier effects which operate on the earnings of trainees. However, since the government could choose any number of ways to raise the national product beside retraining, only the net multiplier effect, if any, of retraining would be relevant. However, the Borus study does not recognize this point. In fact, in contrast to the Borus study, the Cain-Stromsdorfer study argues that both the primary and secondary employment effects of retraining may be relatively small. Ribich (1968) adjusts the differing benefit concepts between the Borus and the Cain-Stromsdorfer studies from respective cost-benefit ratios of 137.3:1 and 12.9:1 to 10.1:1 and 15.0:1. Thus, the ratio for the Borus study drops by 127.2 points mainly after eliminating the multiplier effect and structural unemployment assumptions in his study.

Finally, all of these studies suffer from the fact that an insufficient time period exists to determine the exact time trend of benefits. The Somers (1968) and Cain-Stromsdorfer studies had a maximum period of eighteen months' follow-up for all trainees in their West Virginia sample. Borus had only one year. Each of these studies then made assumptions about how long the benefits would exist. Borus chose a ten-year span. The different analyses of the West Virginia data assumed either that benefits continued undiminished to retirement age or diminished in a simple straight line fashion. When computing rates of return, the assumption was made for computational ease that benefits were infinite. All of these assumptions are essentially arbitrary in nature. Yet, we are in a dilemma. The longer the period after training ends, the more difficult it is to identify what component of earnings is due to the original retraining and how much of it is due to subsequent on-the-job training. The on-the-job investment component may be large. It is certainly not zero. And the more training a person has originally, the larger the subsequent on-the-job training component is likely to be.[11] Yet, obviously, relying on such measures as starting wage differentials for the first job after training offers only minimal information on the time-earnings stream attributable to retraining.

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[11] See, for instance, Jacob Mincer, "On-the-Job Training: Costs, Returns and Some Implications," *Journal of Political Economy, Supplement* (October 1962).

This discussion illustrates the almost interminable methodological issues involved in identifying retraining benefits, but pitfalls also exist in measuring costs. A survey of studies reveals that the treatment of capital costs and transfer payments seem to cause the most difficulty. For instance, both the Cain-Stromsdorfer and the Page studies impute as a cost the subsistence benefits paid to trainees which are above the average of welfare or other transfer payments paid to the control group during the training period. Yet these costs are still transfer payments. They do not represent real social costs, but only costs to a governmental unit. This mixture of social and governmental cost concepts within the same measure is not advised. The Borus study handles these cost concepts separately, keeping to a strict measure of social costs in measuring society costs and benefits and then bringing in unemployment compensation changes, subsistence payments, and similar transfer payments in measures of net cost and benefit to governmental units. Such cost-benefit measures for governmental units are perhaps of political interest and are dictated by political constraints, but social and private measures alone are the economically correct bases on which to make investment decisions with respect to retraining.

Finally, capital costs are difficult to handle. Where existing vocational facilities having no alternative use are employed for retraining, these capital costs are sunk costs, and the charging of them to the program is not correct. The capital costs are, in effect, zero. Only operating and maintenance costs associated with the capital use are relevant.

Secondly, even if one argues that the above capital costs do have alternative uses and therefore represent a cost, where the capital is used simultaneously with other educational activities, the capital costs become joint and cannot be prorated. In such a case total (fixed plus variable) costs cannot be estimated. Thus, average costs cannot be estimated either, except arbitrarily. The exact proration of capital costs in such a case is again zero when one wishes to estimate marginal costs. An example might be of an adult education evening class and an MDTA class being held in a building at the same time. All the building facilities used in common, including variable maintenance costs associated with them, are joint. Yet, proration of these types of capital costs is commonly (and incorrectly) done. The Borus study, for instance, apportions federal government administrative costs to the Connecticut program. These overhead costs are most certainly joint for the national ARA program as a whole and should not be prorated among the states on any simplistic basis.

Summary

It is apparent from this review of studies, both noneconomic and economic, that the methodological issues facing any analysis of the effects of vocational education are formidable. The most critical problems exist on the benefit side. Not only are the outputs of vocational education ill defined in the first instance, but difficulties exist in the empirical estimation of even those that are conceptually clear. However, it is the judgment of the authors that the current quality of evaluation can be raised significantly by careful attention to proper use of methodology. That is, it is our opinion that the existing analyses, taken as a whole, do not use effectively the methodological knowledge which is currently available. For instance, the concept of use of a control group would appear obvious; yet in studies which pose hypotheses whose testing clearly implies the need for a control group, none is employed. And, in other evaluations, where recommendations are made which involve extensive commitment of economic resources, there is no treatment of costs along with benefits. These are only examples. Unfortunately, they do not represent uncommon errors.

Consequently, the final judgment of the chapter must be a negative one with respect to the usefulness of those studies already in existence, but the mood is optimistic, if only because the rate of improvement seems rapid and because there is still so much room for improvement within the available, though imperfect, methodology.

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Chapter 10

VOCATIONAL EDUCATION FOR DISADVANTAGED GROUPS

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Chapter 10

VOCATIONAL EDUCATION FOR DISADVANTAGED GROUPS

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Introduction: Training, Education, and the War on Poverty

The provision of better and more comprehensive vocational training for the disadvantaged is probably the least controversial ingredient of the War on Poverty. In the earliest thinking of the Kennedy Administration, embedded in the first *Manpower Report of the President* in 1963, the notion of better work preparation for young and not-so-young Americans who found themselves left out of a prosperous society was seen as the most important solution. With the passage of time, new and divergent schools of thought emerged over the paradox of the persistence of poverty and public dependency in the midst of unprecedented affluence. Eventually there was a shift away from exclusive emphasis on improving the qualifications and attitudes of the poor, and toward seeking changes in existing social institutions which were seen as having contributed to their continued disadvantaged position. But even as the thinking shifted from the more conservative emphasis on making the poor more employable toward the more radical views of seeking community control, compensatory or preferential job placement, and Black Power as means of social and economic betterment, the demand for better education and job training remained among the foremost goals. Furthermore, the deep and disrupting community controversies which, since 1965, have accompanied the demand for better elementary and secondary education for the disadvantaged in the cities only rarely involved vocational schools or the training programs to the same extent. While they might not necessarily agree on the methods through which vocational education and job training were to be made available, both conservative and liberal elements have endorsed and supported the expansion of vocational and educational programs for the disadvantaged. Thus the Kerner Commission, whose findings and recommendations in the areas of law enforcement, housing, and elementary and secondary education were often viewed as representing a radical or extreme position, found itself merely endorsing the 1968 recommendations of the Advisory Council on Vocational Education,[1] which were also praised by the generally conservative American Vocational Association. This consensus is clearly reflected in the relatively smooth sailing which bills involving considerable outlays for job training and vocational education have experienced in Congress in recent years.

Whether or not these expenditures were translated into effective programs is another question, which will be examined at some length in this chapter. But in order to view these developments in the proper perspective, several points should be stressed.

1. The term "disadvantaged" is a convenient one to describe those who share some or all of the following characteristics: poverty, marginal participation in our present prosperous economy, social and educational skills inadequate for the demands of modern society, or entrapment in opportunity structures limited by the educational, housing, and other community facilities at their disposal. But under this general term, we aggregate a wide variety of individuals not only with very different demographic characteristics (age, race, sex, rural/urban residence, to mention only the most obvious ones) but perhaps more important, in terms of ability and achievement levels, health, family situation, work and social experiences. From the point of view of vocational training, one can maintain that every disadvantaged person can be trained, but the techniques and costs involved will vary greatly, depending on whether we deal with a rural white youngster who is reading two years below grade level or a 40-year-old Negro ghetto-dweller who dropped out of an urban school at age 15 and has never held a steady job. For lack of more precise terminology, from time to time we use the term "hard-core disadvantaged" or even "hard-hard core disadvantaged" merely in order to differentiate, however crudely, the several disadvantaged subpopulations.

2. Because of our pervasive concern in the recent past with the educational and employment deficits facing the disadvantaged, we sometimes forget how recently we began to focus on the problem at all. The first *Manpower Report of the President*, published in March

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[1] *Report of the National Advisory Commission on Civil Disorders* (New York: Bantam Books, Inc., Grosset and Dunlap, Inc., 1968), pp. 454-55.

1963, acknowledged special unemployment problems affecting those groups whom we now call disadvantaged, but it gave no inkling of the magnitude of the effort which was to be expanded on their behalf beginning with the Economic Opportunity Act of 1964. Furthermore, even the Vocational Act of 1963, designed to bring about both rapid expansion and fundamental changes in vocational education, did not put its major emphasis on this task, even though it stressed more clearly than the earlier manpower legislation the need for special programs for disadvantaged young people. At the federal level, sizable funds for the education and training of the disadvantaged became available for the first time in 1966. Understandably, it was not until then that state and local government agencies, public schools, universities, and the professional research community in education and in the social sciences even began to devote significant efforts to programming, staffing, researching, and evaluating vocational education and job training for the disadvantaged.

This time-perspective is essential in discussing the present status of vocational education for the disadvantaged. While findings about progress and effectiveness of programs are beginning to emerge and will be discussed below, there really has not been enough time to come to solid conclusions about the merits of the various approaches developed since 1963. Unfortunately, as is so often the case, it will be necessary to continue making policy decisions before all the desired data can be accumulated and analyzed.

3. Our thinking about vocational education and training has been complicated and obscured by a widespread tendency to define vocational education as a discrete entity within the educational system and as a process which invariably takes place in a formal school setting. This approach seems especially inappropriate when dealing with the needs of the disadvantaged. As many observers have pointed out, we have become entrapped by a definition of vocational education appropriate for public school activities in the subject areas designated by the Smith-Hughes Act of 1917, simply because of administrative and statistical convenience, not because of the relevance of the definition now or, for that matter, at any time in the past.[2]

Similarly, much has been made lately of the distinction between "remedial" and "preparatory" training. Preparatory programs are usually conducted at the secondary school level for regularly enrolled students; remediation programs are for school dropouts or unskilled adults and are generally funded through manpower training programs. But this dichotomy is artificial, belying the pedagogical antecedents of skills training. The full extent of the burden of educational handicaps borne by today's disadvantaged students, whether young or mature, is only now coming to be understood. Large numbers of students have failed to make learning progress commensurate with the number of years they have spent in classrooms because of handicaps such as lack of literacy in the home, negative peer influences, oppressive ghetto or rural slum conditions, and inappropriate or inadequate school facilities, curricula, and staff. At the same time, there is a greater need today than before for verbal, reading, and computational skills in order to master the vocational skills required to fill even relatively simple jobs, and even greater need for these same skills to take advantage of growing opportunities in white-collar and technical service occupations. For many of the disadvantaged, the greatest need is for what has come to be called euphemistically "prevocational" training. The disadvantaged high school or post-high school student from a ghetto or rural slum background will often need considerable remedial work in academic subjects before he can succeed in any vocational program, just as will the adult who left school years earlier.

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[2] Garth L. Mangum, *Reorienting Vocational Education*, Policy Papers in Human Resources and Industrial Relations No. 7 (Ann Arbor and Detroit: University of Michigan-Wayne State University, Institute of Labor and Industrial Relations, May 1968), p. 47.

For purpose of the present discussion, we will not go as far as logic would dictate in the matter of institutional coverage to include the entire spectrum of secondary education since, especially for the disadvantaged, practically all schooling is in preparation for work rather than higher education. However, in addition to program activities integrated into established educational programs, we will examine other work-preparatory approaches—the so-called manpower training programs—which have been introduced as part of the antipoverty effort; for example, the experimental MDTA programs, the Job Corps, the Neighborhood Youth Corps, and others which have sought in one form or another to equip young and adult disadvantaged workers with specific work skills and socialize them to the more general norms and behavior of working relations. Here again it is difficult to determine the exact boundary between vocational education and work itself. It can be argued that some of the large-scale remediation programs—such as the Concentrated Employment Program and the JOBS programs—which primarily seek placement of disadvantaged workers in the hope that on-the-job training and some continuing counseling mechanism will result in effective long-run employment adjustment, are a form of vocational education. However, for the sake of expediency, we have decided to limit ourselves to those programs which have some training component while fully realizing the artificiality of these distinctions and, perhaps more serious, the fact that acceptance of them implies continued adherence to a largely outmoded way of viewing the relationship between education and work.

There has been a tendency, reinforced by agency and congressional rivalries, to emphasize the diverse sponsorship and autonomy of the newer manpower programs. With federal funding the principal and often the only source of monies for manpower training and poverty programs, the Office of Economic Opportunity (OEO) and the U.S. Department of Labor have had the principal responsibility for initiating, funding, and monitoring these programs. It would be erroneous to assume, however, that the two sources through which most vocational training for the disadvantaged is offered—the regular public school program and the ad hoc work-oriented programs which grew out of the War on Poverty—represent separate water-tight compartments. Partly through legislative provisions at the federal level (programs with a formal training component usually provide for participation of and review by the U.S. Office of Education) but more important, through the very nature of the tasks which are being performed at the local level, local school systems and professional vocational educators are heavily involved in the so-called manpower training programs. Such cooperation is a most fortunate development. One of the most widely adopted arrangements for providing training for the disadvantaged in large cities was the creation of Skill Centers, most of them supported through OEO or Labor Department funds and administered and staffed by the local public school systems. Some of them have been trend-setters in the development of new techniques for basic education for out-of-school students, and they have developed new and imaginative materials—including the use of closed-circuit TV, self-monitored teaching machines, etc.—which seem to be more appropriate than conventional classroom tools for these groups. Judging from experience accumulated to date, the emergence of truly effective programs for the disadvantaged is most likely where there is extensive local co-mingling of talent and experience regardless of formal sponsorship.

Vocational Programs for Disadvantaged High-School Students

The Situation Prior to 1963

Passage of the Vocational Act of 1963 and our new-found concern with better education and training for those students, especially members of racial minorities, for whom the public school system has failed to provide adequately has led to considerable discussion of the extent to which vocational programs in public schools should emphasize service to the disadvantaged. In fact, this issue was very much alive in the field prior to the present period, perhaps because vocational educators were becoming increasingly concerned with the image of vocational education as a dumping ground for academically untalented students. Especially in large urban communities, the downgrading of vocational programs probably reached its height during the 1950s when pace-setting public high schools became more college-oriented than ever before under the combined influence of Sputnik, unprecedented prosperity, and the emergence of a socially stratified school system associated with growing residential segregation and suburban expansion. The defensive reaction of the vocational schools was a stress on quality rather than the acceptance of a mission for the disadvantaged—in part, no doubt, because quality of education rather than student needs was the password of the day. But the reaction also was rooted in the fact that so many of the disadvantaged were Negroes whose acceptance into the economic mainstream was being resisted by the traditional clientele of the vocational school—craft unions, small-scale employers—and by many segments of the vocational establishment itself which has strong traditional southern and rural roots.

The barriers to vocational education of disadvantaged, and especially Negro, students were not all one-sided however. Especially in the ghetto, the Negro child and the adults who influenced his thinking often had an unrealistic image of the world of work and of its opportunity structure. Because Negro adults seldom gained access to "middle-range" occupations, the ghetto child was exposed either to the menial occupations of his parents and neighbors, who were domestics, restaurant workers, deliverymen, or porters, or to the more glamorous professionals (doctors, lawyers, teachers, or newspapermen) whom they encountered in the half-world of TV and the other media. As a result, despite poor school achievement and lack of college preparation, these students often maintained unrealistic expectations for "glamour" careers through high school, only to end up in unskilled jobs or among the unemployed, when appropriate counseling and reorientation might have led them into a more productive vocational program.[3]

But despite the vocational programs' reluctance to accept a mission for the disadvantaged and the lack of interest of many disadvantaged students, it can in fact be assumed that a fairly large proportion of students who would be classified as disadvantaged actually did participate in vocational education programs in the past ten to twenty years. Unfortunately, we have practically no hard data in this area. As is the case so frequently with educational statistics, much information is gathered and presented about budgets and facilities, but these data tell us practically nothing about the people for whom these dollars and facilities are used. We know, of course, that larger proportions of the sons and daughters of middle- and upper-class families make concrete plans to attend college than is the case among working class and disadvantaged families, and that this socioeconomic factor is independent of intelligence and school achievement.[4] Because they intend to go to college, middle-class students are likely to be enrolled in college-preparatory programs in high school, leaving children from less favored class backgrounds to constitute the great majority in the general and vocational programs. Given the nature of the available data, we can only guess very roughly at the number of disadvantaged high school students who were enrolled in either of these two kinds of programs. On the basis of 1960 Project Talent data and an unpublished 1965 Educational Opportunity Survey conducted by the U.S. Office of Education, it appears that overall (regardless of socioeconomic status) 22 percent of all Negro twelfth grade students have had some vocational training. This proportion is larger in urban areas and outside of the South. By comparison, only 17 percent of the white students had any vocational training. Moreover, approximately 45 percent of all students in vocational programs came from families in the lowest socioeconomic quartile. The same was true of only 40 percent of the students in general programs and 15 percent of students in college preparatory programs.[5]

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[3] See for example Eunice S. Grier, *In Search of a Future* (Washington: Washington Center for Metropolitan Studies, 1963).

Certainly, not all Negro students and not necessarily all families in the lowest economic quartile can be classified as disadvantaged. Still these figures suggest that sizable numbers of disadvantaged students participated in vocational programs and that especially in the large cities, they had become the dominant group in these programs.

As Mangum observed,

> To the extent that the socio-economically handicapped have more to gain from vocational education, the mix may not be unfavorable.

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[4] There are numerous studies which bear on this point. See, in particular, the work of William H. Sewell and his associates at the University of Wisconsin as reported in numerous journal articles, especially William H. Sewell and Vimal P. Shaky, "Socioeconomic Status, Intelligence, and the Attainment of Higher Education," *Sociology of Education,* 40 (Winter 1967), pp. 1-23.

[5] Mangum, *Reorienting Vocational Education,* pp. 28-29, quoting U.S. Office of Education, Office of Program Planning and Evaluation, *An Analysis of Vocational Education in Our Secondary Schools,* July 1967, p. 28.

However, observation which suggests that the quality of vocational education, like all education, is worst in the central city slums where it is needed most interferes with such sanguine conclusions. On the other hand, if the quality of vocational education is adequate, far too many of the socio-economically and academically disadvantaged are enrolled in general curricula which prepare them for nothing.[6]

From the meager data at hand, it is hard to decide whether disadvantaged students who had participated in vocational programs derived benefits superior to those of their fellow students in other programs. Contrary to what is often assumed, in large cities the holding power of vocational programs is generally low. A study of large city school systems showed that the holding power of all high schools was 71 percent, compared to 51 percent for vocational schools in the same cities. In the largest cities (600,000 and over), the holding power of the vocational schools was lowest (46 percent).[7] Similarly, Project Talent data show very high dropout rates for low-ability students in vocational programs (Table 10-1).

We have no consistent evidence as to whether completion of vocational programs facilitated successful employment of disadvantaged students. The data are extremely scattered, but they seem to suggest that vocational graduates had a slight employment advantage over those who graduated from general programs. A recent study of vocational graduates from eastern cities concludes that although the Negro graduate from the vocational curriculum did not derive the same employment benefits as his white fellow-students, he was better off than the nonvocationally trained Negroes, but this study did not deal specifically with disadvantaged students.[8] Some earnings data for the disadvantaged subgroup were compiled in the Project Talent tabulations prepared for the U.S. Office of Education.[9] These data show that earnings five years after high school graduation are consistent with socioeconomic and ability categories (among which there is, of course, considerable overlap) rather than the high school program in which students were enrolled five years earlier. Still these data suggest that disadvantaged vocational graduates (those in the lowest ability and socioeconomic quartiles), whom one might expect to be concentrated at the lower end of the continuum within each of these quartiles, did comparatively well.

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[6] Ibid., p. 29.

[7] Daniel Schreiber, *Holding Power/Large City School Systems Project: School Dropout* (Washington: National Education Association, 1964), Table 23A, p. 39.

[8] Jacob J. Kaufman et al., *The Role of the Secondary Schools in the Preparation of Youth for Employment* (University Park: Pennsylvania State University, Institute for Human Resources, 1967), ch. 9, p. 49.

[9] U.S. Office of Education, Office of Program Planning and Evaluation, *An Analysis of Vocational Education in Our Secondary Schools*, p. 35.

TABLE 10-1. Dropout Rates[a] of High School Students by Program and Ability Quartile (Per 100 Students)

High School Program	Ability Quartile				
	Total	Low	II	III	High
General	16.2	25.6	16.7	9.1	5.7
College prep	3.9	22.5	6.8	1.9	1.4
Commercial	12.5	18.3	10.9	9.3	5.7
Vocational	22.4	29.8	18.7	8.7	b
Agriculture	27.3	39.3	9.9	b	b

Source: U. S. Office of Education, Office of Program Planning and Evaluation, An Analysis of Vocational Education in Our Secondary Schools (July 1967), p. 28.

a Dropout rates are based on information collected on tenth graders in 1960 and follow-up analysis in 1963; both males and females are included.

b The size of the population within this cell did not warrant the calculation of dropout rates.

TABLE 10-2. Mean Weekly Earnings of High School Graduates by School Program and Ability Quartile—5-year Follow-Up (Males Only)

High School Program	Ability Quartiles							
	Low		II		III		High	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
General	$107	45	$114	79	$120	88	$111	44
College prep	98	34	116	39	112	41	116	30
Commercial	101	37	109	29	112	31	110	20
Vocational	106	34	121	45	121	38	124	43
Agriculture	98	39	107	56	105	43	159	75

Source: U. S. Office of Education, Office of Program Planning and Evaluation, An Analysis of Vocational Education in Our Secondary Schools (July 1967), p. 35.

Note: Includes individuals with no military service or full-time post-high school education.

TABLE 10-3. Mean Weekly Earnings of High School Graduates by School Program and Socioeconomic Quartile—5-Year Follow-Up (Males Only)

High School Program	Socioeconomic Quartile							
	Low		II		III		High	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
General	$106	75	$111	41	$127	92	$117	35
College prep	103	32	111	31	117	43	124	40
Commercial	101	38	108	28	114	33	116	24
Vocational	108	44	111	31	120	36	142	55
Agriculture	100	47	103	40	105	49	99	45

Source: U. S. Office of Education, Office of Program Planning and Evaluation, An Analysis of Vocational Education in Our Secondary Schools (July 1967), p. 35.
Note: Includes individuals with no military service or full-time post-high school education.

The Vocational Act of 1963

The Panel of Consultants on Vocational Education whose report is reflected in the Vocational Act of 1963 were greatly concerned with the need to provide vocational programs for what they called youths with special needs, a term synonymous with the currently more common designation, "disadvantaged." They envisaged several groups in this category. For high school students with special needs, the Panel recommendations included a strong program of vocational guidance and counseling, special classes, cooperative (school-work) programs, basic education when needed, as well as placement and follow-up, and continuing programs of experimentation, research, and evaluation. For out-of-school youths and adults, the panel put special emphasis on training or retraining the unemployed.[10] The Vocational Act of 1963 also authorized an experimental four-year program for residential vocational education schools.

In the five years since the passage of the Act, it has become obvious that many of its provisions, including many of those dealing with the disadvantaged, have not been translated into action. Some programs—in particular the residential schools—never reached the funding stage. But more often the new program emphases stressed by the Act were not being implemented at the state level. This was especially true of the provision of services for persons with special needs.

In its review of the implementation of the Act carried out during

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[10] U.S. Department of Health, Education, and Welfare, Office of Education, *Education for a Changing World of Work,* Report of the Panel of Consultants on Vocational Education (Washington: U.S. Government Printing Office, 1964) pp. 224-36.

1967, the Advisory Council was especially critical of what it saw as lack of progress in this area.

> The special need of those who cannot succeed in a regular vocational program is still being largely ignored or neglected by the educational community. This group requires special programs and resources which take time to develop and implement. There is little indication that the problem is being faced.[11]

The Council was disturbed by expenditure patterns which showed that, in the school year 1965-66, less than 5 percent of all known expenditures were spent on adults and only 1 percent for youths with special needs.[12] Subsequent patterns show only a slight change. In its *Progress Report on Vocational-Technical Education Program Development for Persons with Special Needs*, the Office of Education estimated that for 1968, out of a total of $225 million expended under all Vocational Acts, only $8.4 million (3.7 percent) was allocated by the states to persons with special needs.[13] The percentages varied greatly, even in those states singled out by the *Progress Report* as examples of good and successful programs, with New York spending 17 percent, as against 7 percent for Texas and 1 percent for Pennsylvania.

However, these figures are to some extent misleading, since they understate the extent to which disadvantaged students may have benefited from the new legislation. Under the guidelines developed by the Office of Education, it was not always expedient for the states to set up new facilities meeting the criteria of programs for persons with special needs, although the bulk of students served by these facilities fall into the disadvantaged category. An obvious example is the construction of a new vocational school in the Watts (Los Angeles) area, which is not reported as an expenditure for students with special needs. Similarly, in the present climate of concern, many of the "regular" vocational programs serving students in ghetto areas have been reoriented and become more responsive to the needs of this group. And last, but not least, disadvantaged students were probably the main beneficiaries of the work-study programs funded under the Act which provided for work stations in public agencies for needy students in vocational high schools, although here too it can be assumed that administrative criteria and procedures varied among school districts and especially among the various states. School systems in New Jersey, Michigan, Ohio, North Carolina, and Chicago were among those which used work-study funds to provide summer or year-round programs for the disadvantaged.[14] Although the amounts spent under work-study programs were small in comparison to those spent under the parallel poverty program (Neighborhood Youth Corps), they became sizable by 1966—$20.9 million in combined federal, state, and local funds. But they declined thereafter as the work-study program was being de-emphasized at the federal level. (It was cut out of the Vocational Education budget as of July 1, 1968, but the 1968 amendments included provisions for its reinstatement and expansion.)

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[11] *Vocational Education: The Bridge Between Man and His Work* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968), p. 31.

[12] Ibid., p. 35.

[13] U.S. Department of Health, Education, and Welfare, Office of Education, Program Planning and Development Branch, Division of Vocational and Technical Education, "Progress Report of Vocational-Technical Education Program Development for Persons with Special Needs by States," February 1968, p. 4 (mimeo).

Poor data collection and reporting methods, and lack of coordination and assessment of information are undoubtedly responsible for considerable under-reporting of efforts from which the disadvantaged benefited.[15] But perhaps this under-reporting is symptomatic of the continued resistance on the part of most vocational schools to assuming the overt responsibility for providing vocational education to the hard-core disadvantaged. Many vocational educators at the local level are no doubt reluctant to come to grips with this problem, preferring to stay within the comfortable tradition of providing work skills to rural youth and to children of the lower middle class and "deserving poor" in the cities, while leaving the "hard core" problems to other agencies. In many cases administrators too would no doubt prefer to see the truly hard-to-reach student leave the high school and become the responsibility of a basic education program conducted by special community agencies such as Skill Centers or offered under special MDTA programs.

All told, there can be little disagreement with the views of those critics who feel that the overall effect of the 1963 Act was to increase expenditures and programs in the occupational areas and for student groups previously served, but that relatively little was done to initiate new curricula designed to provide meaningful vocational education for persons who could not succeed in regular programs because of educational or socioeconomic handicaps. No doubt, as is recognized by the changes introduced in the 1968 legislation, the 1963 legislation was too permissive in its effort to reconcile conflicting pressures. To quote Mangum: "The new funds could be used to pursue old objectives as well as new ones."[16]

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[14] Grant Venn, "A Remedy for Ghetto Unrest," *American Education*, 4 (May 1968), pp. 23-24.

[15] See Barbara H. Kemp, "Where Vocational Education Is a Special Need," *American Vocational Journal*, 42 (November 1967), p. 25.

Mangum is highly critical of the U.S. Office of Education for its lack of national leadership in implementing the Act, and he sees, in the absence of more energetic guidelines from Washington, continuing resistance at the state level to the introduction of meaningful changes, despite interest and initiative at the local level where educators are more responsive to local needs. There can be no doubt that many states have been extremely reluctant to accept the mission spelled out in the Act of 1963. According to the *Progress Report on Vocational-Technical Education* concerning programs for persons with special needs, by the beginning of 1968, only twenty-four states had appointed a member of the state staff to work full- or part-time on the development of programs for persons with special needs. For example, the State of Maryland has made responsibility for supervision of vocational education programs for persons with special needs a part-time activity of the Supervisor of Home Economics. Another indicator of the relatively low priority given the program is the number of persons served which, judging from the meager statistics, is sometimes infinitesimal. For 1968, the State of South Carolina reported a total of two programs for students with special needs with a total enrollment of 100 students. Some states had not really even begun to develop programs by the beginning of 1968. South Dakota planned to begin some program development in 1968, and New Hampshire felt that its expanding program for vocational education would provide the added opportunities for persons with special needs. The Office of Education singled out New York, Texas, California, Illinois, New Jersey, Pennsylvania, Connecticut, Kentucky, Mississippi, and Indiana as states leading in the development of substantial programs, although it found significant program contributions in several other states.[17]

Resistance or disinterest at the state level is certainly a major problem, but it would be unfair not to point out the difficulties encountered by state and local agencies interested in developing meaningful programs for the disadvantaged. Insofar as federal funds are required, the cumbersome machinery and the procedural obstacles which confront local and state administrators are most discouraging. Funding delays, partly rooted in the very system of congressional appropriations and compounded by the bureaucratic arrangements at the federal level, often result in funds not being available at the time staff and students have been recruited with great effort. Short-term funding is also a major obstacle when recruiting competent staff for working with disadvantaged students. Such talent is rare and the many newly created agencies and groups are in tight competition. Moreover, the acceptance of new staff with new ideas and different conceptions of the teacher and counselor role is far from automatic in a school milieu often dominated by older educators from very different traditions.

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[16] Mangum, *Reorienting Vocational Education*, p. 21.

[17] U.S. Department of Health, Education, and Welfare, "Progress Report of Vocational-Technical Education . . . ," p. 1.

Much stress had been put by the 1963 Advisory Panel and in the 1963 Act on the speedy development of more relevant data outputs by the U.S. Office of Education to enable better evaluation of the introduction and effectiveness of new programs. Funds were also appropriated for research and development projects designated to assist the states in the development of new curricula and teaching methods. In both respects, the results to date have remained below expectations. Data outputs still tell us mostly about dollars, little about the people, the programs, and the results. Research efforts have been held up by jurisdictional conflicts within the Office of Education, as well as funding delays. Thus, local administrators and innovators have not been able to draw on data and materials from Washington to a satisfactory degree.

Given the clumsiness and sluggishness of the federal procedures, the lack of enthusiasm, and the competition for staff and ideas from manpower programs at the state level, it is perhaps surprising that any significant programs were launched in the public schools under the Act. We are certainly far from the lofty ideals spelled out in the 1963 Act, but the accumulating evidence suggests the emergence of some promising programs, although—as will be shown below—few seem to be truly exemplary. The Office of Education's *Progress Report* published in 1968 singles out for praise the job preparation centers in Cincinnati and Cleveland (which also serve Neighborhood Youth Corps and Work-Experience trainees, and work closely with the Bureau of Employment Service). According to this same source, Portland and other cities in Oregon have introduced what appears to be an innovative and large-scale program including a residential component incorporating some Job Corps ideas for high school dropouts and near-dropouts.

Some systematic information on new projects for students with special needs was obtained through a survey conducted by the Center for Vocational and Technical Education at Ohio State University.[18] Questionnaires were mailed to 333 teachers of vocational education programs for students with special needs and usable questionnaires were received from seventy-nine programs, representing twenty-four states. (At the time of this survey, most states reported no program at all.) All seventy-nine programs were in public high schools and were supported in part or completely by federal vocational education funds. Their curricula were presumably planned and adapted to the needs of this student population and were often designed to assist students in becoming employed in a broad spectrum of occupations rather than being narrowly skill-oriented. Most programs reported in this study were located in large comprehensive high schools in heavily populated areas.

Among the most important conclusions reached by the author of this study—of special interest because they coincide with the findings of an evaluative study conducted at a later time which will be discussed below—are the following:

1. In the majority of programs cost per pupil was the same for disadvantaged students as for those in the regular vocational education programs; 24 percent reported that per pupil cost was higher in programs for students with special needs, and 19 percent that it was lower.
2. The majority of programs utilize on-the-job training to provide needed skill training; there is little need for special physical facilities on the school premises.
3. Selection of students is made through cooperative selection committees. The most often used criterion is an IQ score, which suggests that these early programs were inclined to screen out the least able students.
4. Few programs exist at the grade or age levels at which many of these students begin to drop out of school.
5. Few schools have active, organized placement services to assist graduates to secure their first jobs.

A more recent, evaluative study which sought to identify effective vocational programs for the disadvantaged screened more than 200 vocational programs that, in varying degrees, were serving secondary level disadvantaged students.[19] The investigators concluded that of the (conservatively) estimated 1.1 million disadvantaged youth 14-17 years of age, very few were being served by exemplary vocational programs. They also found an almost total lack of data collection, testing, and evaluation in the programs in existence, which made it impossible to measure in any meaningful way, pre- and post-program experience.

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[18] Ramsey H. Groves, *A National Survey of Vocational Education Programs for Students with Special Needs* (Columbus: Ohio State University, Center for Vocational and Technical Education, May 1966).

[19] Final Report: *An Identification and Analysis of Effective Secondary Level Vocational Programs for the Disadvantaged*, prepared for the U.S. Office of Education, Office of Program Planning and Evaluation (Silver Spring, Md.: Social, Educational Research and Development, Inc., December 1968).

Among the 200 programs screened by the researchers (none of which are identified by name in the final report), not a single exemplary program was found. However, the investigators identified forty programs which were better than average or had exemplary features.

The study was able to identify several truly innovative and exciting programs, which—with some necessary modifications—deserve to be widely replicated. But its overall findings are quite discouraging. The authors found that quality programs tend to serve populations that are highly homogeneous and very small. "There were few exemplary programs serving inner-city hard-core disadvantaged youth with low IQ's and achievement levels and with past histories of personal and social disorganization." Furthermore, "few of the traditional programs succeed in providing both quality education and quality training. With few exceptions, these youth are receiving minimal training to qualify them for terminal positions in low skill areas."[20]

Because no clear definition of "disadvantaged" has been established, more than one school administrator used this lack of consensus as an excuse "for continuing to fill the classrooms with the teachables, to avoid a confrontation with more difficult problems." Even when programs are restricted to the truly disadvantaged, the tendency to seek out the "best of the worst" is ever present. "Many examples of creaming were found in programs, the most obvious being: screening out behavioral problems, rejecting active delinquent cases, and rejecting those who had been expelled from school."[21] Finally, the study found that insofar as testing data could be secured, it showed that students served by programs in the most intensely studied schools obtained very small achievement gains in reading and arithmetic as a result of participation in these programs. This is particularly discouraging news, because of the high hopes held for vocationally oriented programs as a better teaching environment for the acquisition of verbal, writing, and computational skills which are indispensable for achieving a modicum of success in every occupation.

The authors were able to identify some twenty-five factors which were associated with effective vocational programs. Interesting enough the majority of them (fifteen) are no-cost features, having to do with teacher characteristics, community relations, and administrative attitudes. It should also be noted that the improvement of equipment and facilities is seen primarily as important to the morale of teachers rather than affecting the training, retention, and placement of students per se.

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[20] Ibid., p. 3.

[21] Ibid., p. 243.

The 1968 Act: Prospects for the Future

The Vocational Education Amendments of 1968 sought to remedy some of the weaknesses of the earlier legislation. Mainly, they sought to put teeth into the provisions dealing with the disadvantaged by tying funds to specific programs. Courses geared to the disadvantaged as well as expanded work-study programs and demonstration residential schools are all designed to lead to greatly increased activity on behalf of this group. As of this writing (January 1969) no appropriations have been passed, so that it is not yet possible to see clearly whether the Act will indeed be implemented as foreseen or, if in the appropriation and funding process, there will be compromises to water down some of the provisions of the Act (as has been done in the past). If the funding carries through the spirit of the 1968 amendments, there is no doubt that vocational education for the disadvantaged will receive a powerful shot in the arm; although even this shot does not automatically guarantee the institution of effective programs.

Our review of the efforts made since 1963 in the public schools suggests that the mere introduction of new programs provides little assurance that the target population will be reached and that the programs will make a difference for the students who are most in need of them. It took the manpower agencies many years to accept the notion of outreach, which means actively and determinedly seeking out persons in need of training and screening them into programs, rather than follow the traditional screening-out approach under which many educators, welfare workers, and employment counselors have labored in the past, basing their efforts on the assumption that it is best to help those who deserve to be helped, those whose chances for success are brightest. Apparently, most schools have not reached the point where they see their program mission as reaching the true problem cases. Thus, it would not be too surprising to see here a replication of the experience under the Elementary and Secondary Education Act which, at least according to the earliest evaluations, has failed to produce the improvements in academic achievement among the disadvantaged which its sponsors had hoped for. It is difficult to disagree in principle with the position taken by those who feel that the school system must be responsible for educating the disadvantaged so as to enable them to take their place in American society. However, unless major radical changes are introduced in the present system, there is little reason to expect that they can meet this task as they have met "the needs of a frontier society, of an immigrant society, and of a space-age society."[22] One can also legitimately raise the question whether the broad assignment now handed to the schools is so unrealistic, given the magnitude of the task, that, even with considerable effort and good will, the goal is beyond reach.

The question therefore arises as to whether other agencies which have addressed themselves to the problem—the manpower programs funded under the auspices of the War on Poverty—have come closer to meeting the needs of the disadvantaged.

Programs for Out-of-School Youths and Disadvantaged Adults: The New Manpower Programs

The Magnitude of the Problem

How many Americans who are not a part of the high school population can be described as disadvantaged and in need of some form of vocational training or assistance in order to participate in the economic mainstream? When the War on Poverty was launched, the answer was relatively simple: We totalled up the chronically or hard-core unemployed and those employed on a part-time or part-year basis—whom we usually called underemployed—and arrived at a basic count. Some more ambitious manpower planners added in persons working at jobs which paid less than the minimum wage (although this notion was seldom carried through in planning manpower strategies). A little later, as careful surveys of the ghetto population were carried out, a sizable new group was uncovered: persons of working age, most of them Negro men, who had given up looking for work and were leading socially and economically marginal lives without being counted as unemployed. These groups add up to an impressive total. But as of late, our concepts have undergone a further change as we have begun to face the reality of the low-wage worker in a dead-end job who, if he is employed full-time, falls nevertheless into the poverty category and cannot support a family at even minimal levels of health and comfort. Increasingly, as we try to understand the causes of city riots and black protests, we have come to the conclusion that training for upgrading and for escaping from the lowest rung of low-wage, dead-end occupations is an integral part of the War on Poverty. It is also becoming increasingly apparent that substandard jobs are being rejected by the poor as an alternative to welfare or illegal activities. In some cases, such jobs are being passed up because they simply fail to provide the minimum which the latter alternatives—be it at considerable cost to self-respect—make available; in other cases because, especially among the young, the lack of status and dignity is unacceptable.[23] Thus, the number of those who need training and/or employment assistance varies widely, depending on criteria used. In all cases estimates are rough at best, useful only as an indicator of the order of magnitude of the tasks to be faced. According to Labor Department estimates, there were in recent years roughly 1 million hard-core unemployed, who required skill training, literacy training, and successful work experience. In addition, about 1 to 1.5 million workers were underemployed, including many who worked part-time because no full-time work was available. Another three-quarters of a million probably had withdrawn from the labor force altogether (they were not working and not looking for work) because they believed they would be unable to find work.[24] These figures do not include the large number of employed workers earning less than $3,000, many of whom are also potential candidates for vocational assistance. More recently, the federal Interagency Manpower Planning Task Force put forward an estimate of 11 million chronically poor people, who "could be helped to obtain better, more remunerative jobs through a variety of manpower measures designed not only to develop their skills and employability but also to remove artificial barrier to their employment."[25] The estimated total is made up largely of women, youth under 21, and rural and urban slum-dwellers; about two-fifths of the total are nonwhites. Obviously, the task is a staggering one, and one not restricted to any one region or city size. While Negro unrest in the large metropolitan areas has drawn much attention and federal efforts into the inner city ghettos, the problems are equally acute in rural areas and "pockets of poverty" in smaller towns. In these locations, the cost to society of poverty and lack of training may not be as large—there are no riots, burnings, or crime waves—but individual suffering in terms of malnutrition and lives devoid of hope and prospects reaches shocking proportions in the total context of an affluent society.[26]

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[22] Marvin J. Feldman, *Public Education and Manpower Development* (New York: Ford Foundation Reprint, 1967), SR 23, p. 22.

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[23] For an up-to-date discussion of this problem, see Herbert J. Gans, "Malemployment: The Problem of Underpaid and Dirty Work," *New Generation*, 50 (Winter 1968), pp. 15-18.

[24] U.S. Department of Labor, *Manpower Report of the President* (Washington: U.S. Government Printing Office, April 1968), pp. 18-25.

[25] U.S. Department of Labor, *Manpower Report of the President* (Washington: U.S. Government Printing Office, January 1969), p. 141.

Since 1961, numerous programs have been initiated to attack various facets of the problem. Modest at first, the efforts to cope with manpower problems reached the impressive total of $2 billion a year in the latter years of the Johnson administration.[27] In 1962, a total of 12,000 persons were counted as first-time enrollees in a federally-assisted manpower program; by 1965, the comparable number was 480,000, and by 1967, it had come close to 1.5 million. (By 1968, the figure was lower again—1,300,000 as a result of cutbacks of funds in some programs.)[28]

Initially, much of the reliance was placed on training of disadvantaged or hard-core unemployed in basic or prevocational skills as well as on preparing them for specific jobs, with the underlying goal of making the trainee more acceptable to employers. As time went by and experience was gained, more emphasis was put on job placement and on persuading employers to accept the disadvantaged such as they were, with training either given on the job or concurrent with actual job holding. Thus, many of these latter efforts were a far cry from conventional vocational training concepts. We will discuss them briefly here, emphasizing those programs which had a more significant educational component, but touching on others whose experiences are also important for the field of vocational education.

Programs Under the Manpower Development Training Act (MDTA)

Even before 1964, it had become apparent that the early Manpower and Training Development (MDTA) Programs required too high a level of education and work experience to be a suitable instrument for training the disadvantaged who constituted the bulk of their potential clientele. Furthermore, the initial orientation of local MDTA administrators was not geared to coping with the special problems of the disadvantaged or to accept innovative and unconventional methods that might be required for dealing with this population. However, as the need for special programs for the disadvantaged became a topic of major concern, the mission of MDTA programs was redirected to focus on out-of-school youths and other hard-core disadvantaged; new methods and techniques for dealing with these groups were to be found through a series of separately-funded experimental and demonstration programs.

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[26] See A. O. Haller, "Education and the Occupational Achievement Process" in *Rural Poverty in the United States,* A Report by the President's National Advisory Commission on Rural Poverty (Washington: U.S. Government Printing Office, May 1968), pp. 149-68.

[27] For a summary of the evolution of manpower policy and programs during the sixties, see Garth L. Mangum, "Manpower Programs U.S.A.: An Inventory," *New Generation,* 50 (Winter 1968), pp. 18-21.

[28] U.S. Department of Labor, *Manpower Report of the President,* 1969, p. 140.

Some MDTA programs had no classroom or institutional component at all, involving only on-the-job training. But most programs included some prevocational and vocational training administered through state and local public school systems. Thus MDTA infused into the vocational education system substantial federal funds which were available only if used for the unemployed or underemployed and which were unburdened by the customary matching requirements. This led to the development of a new educational institution, the MDTA Skill Center, where the vocational educators had the opportunity to experiment with new teaching materials and techniques suitable for basic education as well as other job-preparation curricula for the disadvantaged. By 1968, fifty-five Manpower Training Skills Centers were in operation. The Skill Centers usually offer counseling, basic education, prevocational training as well as occupational training and also have responsibility for job placement and follow-up. The best centers are also distinguished by their provision for auxiliary services such as health and child care, consumer education, legal assistance, family counseling, etc., and they were often the key to successful recruitment, retention, and placement of disadvantaged trainees. Their main drawback is lack of staff and program continuity, with operations staffed and financed on a project basis. The need for stable financing became increasingly recognized in 1968, and three experimental efforts for integrated, annual financial arrangements were substituted for the usual project-by-project funding. If these experiments are successful, most centers will eventually be financed on an annual basis.[29]

How successful was MDTA in meeting the needs of the hard-core disadvantaged? As always, we do not have enough consistent high-quality data to answer these questions with the degree of precision which would be desirable, although MDTA probably has the best data and feedback system of current vocational education and training programs. In terms of some of the formal criteria, recruitment of the disadvantaged was certainly a reality. Available figures (on heads of families only) indicated that in 1966, about 80 percent of institutional trainees and 50 percent of those trained on the job earned $3,000 or less during the previous year; the number of persons with no reported earnings at all was considerable (over 25 percent of the institutional group). In 1967, the goal was to increase enrollment of the disadvantaged to 65 percent of all MDTA trainees. However, careful examination of MDTA records showed that despite the emphasis on reaching the hard-core, even this program found it hard to avoid dealing with "the best of the worst." Persons with nine to eleven years of education were over-represented compared to those with eight years or less. Little was accomplished for those over 45 years of age. One reason for the program's failure to get hard-hard core was seen in the referral system: "The fact that most MDTA referrals are Employment Service applicants makes it likely that, even when seeking the disadvantaged, it is the best prepared and most motivated who will be enrolled."[30] The apparent resistance at the local level to the introduction of disadvantaged trainees into on-the-job training (OJT) slots was responsible for the later decisions to shift efforts in this direction directly to private industry.

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[29] Ibid., p. 79.

Data on placement and job retention generally suggest that about two-thirds of institutional trainees (and 90 percent of OJT trainees) are placed after training, most of them in training-related jobs. However, most follow-up studies are relatively short term, with a trainee contact three or six months after program completion. There is little information about longer-term outcomes, and usually no comparison group data which would enable one to differentiate between outcomes attributable to training and those resulting from changing economic conditions or employer sentiment.[31]

Training programs such as those conducted under MDTA look eminently sensible and rational when they are outlined on paper, but field operations are another matter again. There is, first of all, the by no means trivial staff recruitment and facilities question. Bureaucratic snarls are frequent: Various agencies have to approve programs, certify employment openings for training occupations, and last but not least, release funds at appropriate times. Perhaps most cumbersome is the matter of training allowances, the sums paid for subsistence while persons are full time in training. Family heads are eligible for training allowances with amounts varying locally and scaled to the number of dependents, but usually not exceeding $65 or $70 per week; minors, irrespective of their familial status, are eligible to receive a $20 weekly training allowance. On the one hand, these allowances may not be high enough to induce male hard-core unemployed or underemployed to subject themselves to a training or schooling situation which many see as humiliating or useless. This at least is one theory advanced for the consistent difficulty encountered in recruiting younger males into many of these programs. On the other hand, in the world of the hard-core poor, where long-term planning is seldom characteristic of life-styles, training programs have come to be seen as another short-term source of income. The following excerpt from an interview conducted with a counselor at the U.S. Employment Office in Washington, D.C., is extremely revealing because it reflects conditions present in many large cities:

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[30] Garth L. Mangum, "Manpower Programs in the Antipoverty Effort," in *Examination of the War on Poverty*, Staff and Consultants Reports, Vol. II, prepared for the Subcommittee on Employment, Manpower, and Poverty of the Committee on Labor and Public Welfare, U.S. Senate (Washington: U.S. Government Printing Office, August 1967), p. 237.

[31] For a discussion of MDTA evaluation results and problems, see Earl D. Main, "A Nationwide Evaluation of MDTA Institutional Job Training," *Journal of Human Resources*, 3 (Spring 1968), pp. 159-70.

> Q: Now about the people who come in here without job training. When you suggest a training program what, generally, is their attitude?
>
> Mrs. Bandy (Counselor): Number one, many people go into training programs not looking to it primarily as training, but looking at it as income. Many drop out before the training is completed because they have a chance for better money at that particular time without further training. So there is a real problem with future planning. We hear all the time that the poor person in the ghetto is living for today while the middle-class person sacrifices today for the future. The ghetto resident has to scrape up, let's say, $85 to pay the rent for the month and at $20 a week on a training program he can't do it. So many of them view training like that.
>
> Q: They approach training very, very pragmatically, right? They do not approach training as a means of learning a trade, gaining higher pay, greater security, and a happier future?
>
> Mrs. Bandy: Many enter training solely because "it's something I can start tomorrow and get a paycheck on Friday." And let me add something on this subject. There have been so many cases of frustration at the end of a training program with still not being qualified to get a job that many people are disillusioned about taking any type of training at all. We've got a training program right now for maintenance and service workers. But who wants to train to push a mop? This is what a lot of them are saying. Now with older workers it may be a different thing. They may feel that with this skill they can form a little business of their own and go out and offer their services. That's all right when you are 45 or 50 or older. It's no good when you are a youth, because you are still training to be a mop-pusher. Those are some of the attitudes toward job training.[32]

And once more, we are faced with the vicious circle that those most likely to have motivation for long-term training are the best educated whose prospects are brightest even without the training, whereas the true hard-core are most likely to treat this resource as another temporary panacea in their day-by-day struggle for economic survival.

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[32] "The Hardcore Unemployed: Problems and Attitudes, A Journal Reporter Visits the U.S. Employment Service," *American Vocational Journal*, 43 (November 1968), p. 31.

Yet in the context of vocational education, it would be unwise to end on a note of pessimism with respect to MDTA programs. They may not be appropriate for the hard-core disadvantaged, but they have undoubtedly carried out an important vocational function for those just above the hard-core line. These are men and especially women who went through the public schools, both in the South and the North, without acquiring employment skills and in many cases, despite eleven or twelve years of formal school, without more than seventh or eighth grade writing and mathematical skills. For these people, MDTA programs offered not only remedial education and training but also provided certification, job channeling, and at times social services which, in combination, left them infinitely better able to deal with the labor market. Perhaps most important was the MDTA influence on institutions responsible for the education of disadvantaged at the local level. The experimental and demonstration programs, as well as the research programs, have in effect developed, tested, and evaluated some of the newer teaching devices and motivational approaches, especially in the field of basic education for adults. Equally important, local Skill Centers and experimental and demonstration programs have recruited personnel with fresh ideas about teaching, counseling, and job development, some of whom have been subsequently absorbed by the school system or the employment service and have brought new skills and ideas to these institutions. This diffusion effect has not been systematically studied. It would be well worthwhile to learn more about the conditions under which it does or does not occur.

Training Programs Conducted by Special Antipoverty Agencies

New agencies, unconstrained by established procedures, perspectives, and organizational relationships, were in a better position to develop programs whose only mission was to service their exclusive clientele, the disadvantaged. They were also operating under a somewhat different philosophy, being less inclined to view the solution to the problems of the disadvantaged only in terms of changing their skills and attitudes; rather they were prepared to mobilize and manipulate social and community forces, often by helping the poor to exert political and social pressures and make existing agencies more responsive to their needs. Simultaneously, the antipoverty agencies recognized the need for better job preparation so that the disadvantaged could profit from the opening-up of better opportunities and jobs which community action and self-help would generate.

Three large-scale programs with training objectives were initiated under the antipoverty legislation (Economic Opportunity Act) of 1964: the Job Corps, the Neighborhood Youth Corps, and Work Experience and Training Programs. There were other small-scale programs, in particular the New Careers project which had as its objective the placement of poor in newly created jobs especially in the health, education, recreation, and welfare sectors. Last but not least, massive placement programs with minimal training components—either on the job or through brief Skill Center efforts—were introduced in cooperation with private industry. However, for purposes of this chapter, we will limit discussion to those programs which included some training.

Job Corps

The Job Corps was set up to assist young persons who need and can benefit from an unusually intensive program, operated in a group setting, to become more responsible, employable, and productive citizens. Eligible for participation were: young men and women, 16 through 21 years, in low-income situations,

> . . . who require additional education, training, or intensive counseling and related assistance in order to secure and hold meaningful employment, participate successfully in regular schoolwork, qualify for other training programs suitable to his need, or satisfy Armed Forces requirements, and currently living in an environment . . . characterized by cultural deprivation, a disruptive homelife, or other disorienting condition [which would] impair his prospects for successful participation in any other programs.[33]

Enrollment was generally limited to two years. Two types of programs were set up: Youth Conservation programs in rural areas for those with the most severe educational deficit and work-training programs in urban centers, emphasizing vocational training for youths with at least a sixth grade level reading achievement.

By June 1967 the Job Corps operated 122 centers with a total enrollment of 39,400 of whom 9,500 were women. By the end of 1968, the number of centers was down to 109, with 33,000 enrollees. Altogether, from the beginning of the program in early 1965 until mid-1968, 200,000 disadvantaged youths had been enrolled for some period of time. The centers were operated by private contractors, including universities, nonprofit institutions, and private firms.

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[33] U.S. Congress, Senate, "Economic Opportunity Amendments of 1967," Public Law 90-222, 90th Congress, 1967, S. 2388, p. 2.

A careful and critical study of the Job Corps and other antipoverty training programs was carried out for the Senate Committee on Labor by Sar A. Levitan.[34] Although the author raises many questions about some aspects of the program, he stresses its "hard-core" recruitment policy; unlike other institutions, the Job Corps deliberately recruited those who needed this type of facility the most.

> The Job Corps could have avoided a great deal of criticism and unfavorable publicity if the administrators had decided to attract the "cream" of the disadvantaged youths. . . . The record of the Job Corps is clear: It tried to attract youths who had difficulty finding employment even in a tight labor market. Two of every five enrollees in May 1967 had completed eight years of education or less. And actual educational achievement was much lower than the formal education would indicate. Reading and arithmetic comprehension for half of the enrollees was at about the fifth grade level. Nearly one of every three was unable to read a simple sentence or solve a second grade arithmetic problem. Three of every five came from a broken home, and two of every five from families on relief.[35]

How successful was the Job Corps in retaining, training, and placing these hard-core disadvantaged? Retention was a major problem. Although the legislation authorized programs of two-year duration, only one out of nine corpsmen remained as long as one year. In the light of early retention experience, training courses were designed to last generally nine months or less, but a sample survey, conducted by Louis Harris Associates, of enrollees who left centers in the Fall of 1966 showed a median stay of 4.3 months, with only 29 percent of all enrollees persisting for six months or more. Women, the very young, and men enrolled in conservation centers had the poorest retention records.

Job Corps officials attributed retention difficulties to early growing pains of the program; their statistics show some improvement in the older, better-established centers. One suspects that homesickness, community hostility, lack of individualized counseling, all played a part.

Some data are available on the education and placement outcomes of Job Corps training. On the average, nine months of enrollment is said to have raised the average reading ability of corpsmen by about 1.5 grades, arithmetic comprehension by 1.8 grades. While some of the better skill centers have achieved comparable results, it should be stressed that they may have dealt with a less severely disadvantaged population. In a paper discussing manpower programs for the disadvantaged, an official of the Manpower Administration reported that,

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[34] Sar A. Levitan, "Job Corps," "Neighborhood Youth Corps," and "Work Experience and Training," in *Examination of the War on Poverty,* Staff and Consultants Reports, Vol. 1, prepared for the Subcommittee on Employment, Manpower, and Poverty of the Committee on Labor and Public Welfare, U.S. Senate (Washington: U.S. Government Printing Office, August 1967); the highlights of this report are summarized in Sar A. Levitan, *Antipoverty Work and Training Efforts: Goals and Reality,* Policy Papers in Human Resources and Industrial Relations No. 3 (Ann Arbor and Detroit: University of Michigan-Wayne State University, Institute of Labor and Industrial Relations, August 1967).

[35] Levitan, *Antipoverty Work and Training Efforts . . . ,*" p. 8.

> . . . typically, by the crude measures now in use, average gains of about 1.5 grades can be achieved in about half a year. . . . If a trainee is performing well enough that he can be brought up to the 9th grade level he is off and running. . . . But if he starts around the 3rd grade level it will take longer than the typical hard core youth can tolerate to bring him to levels that permit him to function well in a skilled occupation. A few projects claim a rise of 2-3 grade levels in about 300 hours. We hope that replication and analysis will help to verify and disseminate techniques that can produce higher than normal gain. This is an area in which a breakthrough is badly needed.[36]

Skill training was favorably rated, according to rather thin data collected for the U.S. Chamber of Commerce from 195 employers and 107 former corpsmen. The great majority of both employers and the trainees themselves felt that the training was of high quality or at least satisfactory.[37] From the limited evidence on hand from other follow-up surveys, this employer evaluation compares favorably with that of some vocational programs in public schools, which served regular vocational students and not the disadvantaged.[38]

Training quality and length of stay are of course not unrelated. Louis Harris Associates report that graduates in programs over six months maintain a clear lead in terms of employment and wages over those who dropped out before six months, were discharged, or stayed in the program less than six months for other reasons. Placement data are also available from the Harris survey; they show that by May 1967, 54 percent of those who left centers from September through November 1966 were working, 32 percent were unemployed, the remainder being in school or the military. Among graduates, the proportion unemployed was lower (27 percent), and among dropouts and discharges it was higher (38 percent).

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[36] Judah Drob, "How Successful Can We Be in Manpower Programs for the Disadvantaged?", paper presented at the American Orthopsychiatric Association Annual Meeting, Chicago, March 23, 1968, p. 8.

[37] *Youth and the War on Poverty,* An Evaluation of the Job Corps, Neighborhood Youth Corps, and Project Head Start prepared for the Chamber of Commerce of the United States, n.d., Appendix C-E.

[38] Kaufman et al., *The Role of the Secondary Schools . . . ,* ch. 6, p. 27.

Much of the criticism to which the Job Corps has been subjected centers around the high cost of the residential program ("It costs as much as Harvard" was a popular headline in the press at the time of congressional hearings) and the lack of evidence that the residential component is essential for retraining. Enrollee man-year costs were $8,470 in 1966 and $6,725 in 1968; for 1969 costs have been estimated at $6,300.[39] The Chamber of Commerce, in its previously quoted evaluation, made much of the fact that many Job Corps graduates were not employed in the skill for which they were trained. No doubt, program inefficiencies and inadequacies could be easily documented. But what seems most important in view of the pioneering nature of the effort is that the Job Corps really tackled the training of the hard-core disadvantaged, which most other institutions have not yet done, and succeeded in improving the skills, motivation, and employability of sizable numbers of recruits. Vocational educators who have studied its methods and approaches have been impressed and have incorporated some Job Corps features in other programs. For example, reading and mathematics materials developed by the Job Corps are employed in a pilot project in twenty-one schools, and participants are reported to have gained a year in reading after forty-two hours of instruction, and a year in mathematics after thirty-three hours. The Air Force has also tried Job Corps materials with good results in Project 100,000 for disadvantaged servicemen.[40] Although the fate of the Job Corps is uncertain at best, it would be a mistake to dismiss it as a failure. It proved that given a high per-student level of expenditure and a willingness to depart radically from established practices, a certain segment of potentially hostile and socially destructive young people can be reoriented toward productive roles. Whether we are willing to make this investment for a large number of young people, whether it should be made in a different institutional framework, or whether modifications should be introduced in the existing program, is of course open to question.

The Neighborhood Youth Corps

There are two components to the Neighborhood Youth Corps: in-school programs, which are open to students from low-income families, grades 9 through 12, or those who are of high school age but are in lower grades; and out-of-school programs, designed for out-of-school youths aged 16 to 21. Approximately 200,000 disadvantaged youths were enrolled in the in-school program in 1967-68; the out-of-school program reportedly served 160,000. Like the Job Corps, the Neighborhood Youth Corps is apparently reaching the type of youth for which it was designed (see Table 10-4). Furthermore, the proportion of hard-core disadvantaged has increased with passage of time.[41]

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[39] U.S. Department of Labor, *Manpower Report of the President*, 1969, p. 100.
[40] Ibid., p. 101.

TABLE 10-4. Characteristics of Neighborhood Youth Corps Enrollees

	In-School		Out-of-School	
	Male	Female	Male	Female
Percent nonwhite	40	43	45	62
Percent 18 or younger	92	94	65	50
Percent single	99	98	93	74
Percent with children	2	5	5	43
Percent completed 9 or less grades	—	—	63	39
Percent completed 12 grades	—	—	5	17
Median years completed			8.5	10.5
Percent out of school more than one year			52	59
Percent living with both parents	55	54	43	32
Percent 5 or more persons in family	74	75	67	60
Median family income	$2,460	$2,530	$2,140	$2,110

Source: Harold L. Sheppard, "Neighborhood Youth Corps," in *Examination of the War on Poverty*, Staff and Consultants Reports, Vol. I (Washington: U.S. Government Printing Office, 1967), p. 31.

The in-school program is primarily a school retention program, under which low-income students are enabled to work up to fifteen hours per week on the school premises, for example as clerks, typists, teachers' aides, library aides, and custodial assistants. Funds for Neighborhood Youth Corps in-school programs have also been utilized for special summer programs, basically designed to keep youngsters off the streets as part of the cities' riot-prevention efforts. There has been conflicting research evidence about the success of the program as a device to improve school retention, although the most recent data from Washington and Pittsburgh strongly suggest that the projects have been effective in this regard.[42]

The most persistent criticism made of the Neighborhood Youth Corps in-school programs centers on the nature of the jobs held under the program. Until 1967, legislation prohibited the use of Neighborhood Youth Corps funds for work in other than nonprofit institutions; in practice, in-school programs consisted mostly in providing free labor for the schools, which was often difficult to translate into meaningful work experiences especially for boys who—unlike girls—seldom had any typing or clerical skills. A program such as Neighborhood Youth Corps might provide vocationally meaningful experiences for the many disadvantaged who have no realistic exposure to the world of work through their home life or neighborhood, but apparently the program is not very helpful from this point of view. (Even compared to the work-study program available for vocational students, which is considered inferior to the more carefully planned cooperative work program, Neighborhood Youth Corps programs provide much more limited work experience.) The lack of meaningful skill training is apparently a major objection raised by rural educators and administrators, who had hoped to use the program to supplement the often meager vocational resources in rural areas. In a recent study of Youth Corps projects for rural youths, the author states:

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[41] Harold L. Sheppard, "Neighborhood Youth Corps," in *Examination of the War on Poverty*, Vol. I, p. 31.

[42] Levitan, *Antipoverty Work and Training Efforts . . .*, pp. 50-54.

> The need for a broadened NYC program in rural areas is reflected in the goals that rural NYC directors tend to set for their projects. These objectives reach beyond the provision of a part time job. They emphasize the need for learning some occupational skills from the job, as well as some social skills. The emphasis on teaching a skill is an extension of the attitude of the rural community in this respect. There are no institutions in many of these communities to provide vocational training for youth. NYC is the only functioning institution that might provide this kind of training. Much of the criticism of existing projects reflects the belief that NYC is not teaching anything.[43]

In the cities, the program may have some value in addition to providing income for needy young people and promoting school retention. It provides young people with a work record which is an asset, especially for disadvantaged students, in dealing with prospective employers to secure even low-skill jobs.

The lack of training or skill component appears a more critical drawback for out-of-school programs which, as framed in the Economic Opportunity Act of 1964, were to provide low-income unemployed youth useful work-training experience, counseling, remedial education, and training that would result in return to school, or in improvement in motivation and work habits that would lead to vocational training or permanent employment. Although the 1966 amendments expanded the program and authorized placement of enrollees with private employers, it does not appear from the infor-

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[43] Guy H. Miles, *Final Report on Phase I, Optimizing the Benefits of Neighborhood Youth Corps Projects for Rural Youth,* prepared for the Manpower Administration, Office of Manpower Research, U.S. Department of Labor (Minneapolis: North Star Research and Development Institute, 1968), p. 16.

mation available that many opportunities were developed in private industry for the disadvantaged youth. As late as 1968, only sixty-six private firms participated in the Work Training in Industry segment, with a total of 600 enrollees. Table 10-5 suggests that there were apparently no substantial differences between the in-school and out-of-school programs with respect to the types of placements secured under the two programs, with custodial and maintenance tasks accounting for the bulk of male placements under both programs. The out-of-school program achieved a higher placement rate in the area of health services, whereas the in-school program quite understandably trained much larger numbers of educational aides.

In the opinion of some observers, the out-of-school program serves mainly as an "aging vat" or deep-freeze, holding unemployed teenagers until they are old enough to obtain jobs; but this is not necessarily a negligible function: "Benefits can be derived from merely holding youths out of the labor force until they are old enough to obtain real jobs."[44]

The more important question is whether the program, in addition to keeping these young people out of trouble, makes a contribution to their subsequent employment success. From the studies done to date, this appears to be mainly related to the length of time spent in the Corps, which in turn is affected by the program's ability to offer meaningful work experiences.[45] Thus, in the opinion of one observer:

> The principal failings of the NYC, symbolized by its high turnover rate, relate to its inability to offer job assignments which the youths can perceive as challenging; to offer training which they can meaningfully relate to their occupational needs and goals; and to compete with the job market in terms of pay scales. Furthermore, the Corps appears inflexible to the youths, unable to provide them with alternative assignments if they become dissatisfied with the assignments in which they find themselves.[46]

The principal need as seen by this evaluator is the provision of "training components which the enrollees can perceive as offering them genuine and marketable skills, especially in the skilled trades and skilled craftsmen categories, which are repeatedly cited as being

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[44] Sheppard, "Neighborhood Youth Corps," p. 38.

[45] Dunlap and Associates, Inc., *Survey of Terminees from Out-of-School Neighborhood Youth Corps Projects*, Vol. I, Summary of Findings (Washington: U.S. Department of Labor, Bureau of Work Programs, May 1967).

[46] Melvin Herman et al., *Study of the Meaning, Experience, and Effects of the Neighborhood Youth Corps on Negro Youth Who Are Seeking Work*, Part V: "Neighborhood Youth Corps Enrollees Six Months After Enrollment, A Follow-Up Study" (New York: New York University, June 1968), p. 18.

TABLE 10-5. Distribution of Youths Enrolled in NYC Programs, by Work Assignment, Sex, and Race

Work Assignment	In-School Programs							Out-of-School Programs						
	Total Enrolled	Male			Female			Total Enrolled	Male			Female		
		Total	White	Negro	Total	White	Negro		Total	White	Negro	Total	White	Negro
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Clerical	18.8	5.0	4.4	6.2	33.8	35.0	31.7	28.4	7.9	6.7	9.7	54.9	59.9	50.7
Educational aides	20.0	12.4	11.3	14.5	28.3	25.8	32.4	3.4	.9	.8	1.0	6.6	6.4	6.8
Custodial	24.5	40.2	40.7	39.3	7.4	7.2	7.8	7.8	9.7	8.4	11.6	5.3	3.8	6.5
Maintenance	10.9	18.8	20.0	16.4	2.3	2.4	2.2	19.7	33.6	33.3	34.0	1.9	2.0	1.8
Conservation	4.2	7.6	7.7	7.3	.5	.5	.4	18.0	31.1	36.2	23.5	1.2	.9	1.4
Food service	8.1	5.6	5.6	5.7	10.8	11.4	9.9	4.1	1.4	1.1	1.8	7.7	7.0	8.3
Health service	1.6	.8	.7	.9	2.5	2.3	2.9	7.6	2.9	2.4	3.6	13.7	11.9	15.2
Craftsmen mechanics	.8	1.4	1.6	1.0	.1	.1	a	4.1	6.8	6.6	6.9	.6	.6	.5
Library aides	6.9	2.4	2.4	2.4	11.8	13.4	9.2	1.9	.6	.6	.6	3.7	4.6	2.9
Recreation	3.8	5.1	4.8	5.8	2.3	1.8	3.1	4.1	4.0	2.6	6.1	4.2	2.7	5.4
Miscellaneous	.4	.6	.6	.6	.3	.2	.4	.9	1.2	1.3	1.1	.4	.3	.6

Source: U. S. Department of Labor, Manpower Administration, The Neighborhood Youth Corps, Three Years of Success, 1968, pp. 11-12.
Note: Detail does not always add to 100 percent due to rounding.
a Less than 0.05 percent.

especially interesting to the respondents."[47]

The previously quoted, much more critical report prepared for the Chamber of Commerce reached the same conclusion and also stressed the lack of formal schooling or training sought by Corps members:

> Vocational education training, necessary for the enrollees to secure meaningful jobs, has been minimal in the Neighborhood Youth Corps.
>
> The Neighborhood Youth Corps indicates that only 38.2% of the out-of-school enrollees return to school, receive additional training, or are employed after the program is completed.[48]

All told, the program appears to have reached the appropriate target group. Those projects with holding power, usually the ones which had made satisfactory placement arrangements, apparently succeeded in making their participants more employable, not primarily through academic or skill improvement, but by a certification process involving work experience and perhaps some attitudinal reorientation which brought these out-of-school youths closer to high-school graduates in the eyes of employers. But these conclusions must be tentative since for this program, as for practically all others, there are no long-term follow-up studies which would enable us to make meaningful judgments about real program effectiveness.

New Careers

Among the more exciting ideas generated by the War on Poverty strategists is the New Careers programs for adults 22 years or older. It combined the notion of offering meaningful careers (rather than menial dead-end jobs) for which the disadvantaged might be uniquely qualified by their background and experiences, and which would fill the growing need for "human service" personnel especially in the fields of health, education, recreation, housing, and consumer activities. Training for these "subprofessional" jobs, to be structured along a career-ladder, would be undertaken by the growing body of junior colleges or four-year community colleges which would admit "New Careers" trainees regardless of their former educational background.

As of 1968, the program had barely been started, and it is not possible at this time to say much about it. It has already become clear, however, that once more we have a "creaming" problem, with the best educated, most experienced, and otherwise best qualified candidates recruited into the program.[49] This is of course not unexpected, since these jobs are among the best paid, most prestigious, and most desirable in the eyes of the residents of the disadvantaged community. New career positions have been created and accepted in many community agencies, despite earlier predictions of resistance on the part of formally trained professionals and near-professionals. The greatest obstacle resides apparently in excessively rigid state or local civil service requirements which stand in the way of job expansion in the public sector, potentially the most important source of employment of New Careers personnel. To date, most training has apparently been conducted on-the-job or in small groups sponsored by employers. Program plans are underway in community colleges in the major cities, however, and if federal funding continues to be available, the program may develop considerably in years to come.

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[47] Ibid.

[48] *Youth and the War on Poverty*, pp. 1-2.

[49] Garth L. Mangum, "The Status of Manpower Policy," testimony before the Senate Subcommittee on Employment, Manpower, and Poverty, Washington, May 7, 1968, p. 23.

Other Manpower Training Programs

The vast array of remaining manpower programs, most of which are of more recent vintage, have emphasized placement rather than training. Institutional education in particular has been downgraded in favor of this approach, largely because of the lack of holding power of many training programs and because of the frequent lack of articulation between training and placement which plagued even the best programs. Training under the earlier programs—MDTA, Job Corps—is very expensive on a per capita basis, and comparable expenditures under the new programs, such as CEPs (Concentrated Employment Programs), JOBS, and Operation Mainstream can enroll higher numbers of unemployed adults. Of late, the tendency has even been to restrict the basic education component long believed to be essential. Only the new WIN program—the successor to the Title V Work Experience program created largely to satisfy the critics of welfare policies by promoting job-holding among welfare recipients, including mothers receiving Aid to Dependent Children—still provides for fairly extensive basic education, although here too emphasis is on early or speedy placement.

The new policies reflect a decision to focus on the placement of disadvantaged in "jobs which really require little or no training and for which wages are low and turnover high."[50] However many of these jobs—especially in large establishments in major industries—can become good jobs if the recent entrants stay long enough to accumulate experience and seniority; their situation will then be comparable to that of the many low-skill but adequately paid industrial workers who constitute a vast segment of the working class.

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[50] Ibid., p. 38.

Conclusion

There are no quick and easy solutions to the problems of the disadvantaged. Although there is no unanimity on the subject, most researchers feel that the learning and cultural deficits which the disadvantaged accumulate in our present society during early childhood can be overcome at a later stage only with the expenditure of tremendous resources and large inputs of talent and energy. While it is, of course, possible to rehabilitate the most seriously damaged individual provided we are willing to invest the time and effort and are furthermore willing to provide for a very long period of some post-training assistance or "hand holding," it is far from clear that we have the talent or are willing to make the major commitment required. Even if we decided to make an all-out effort, the best strategies and their success probabilities are far from clear cut. What is clear is that our first priority must go in the direction of improving the early childhood education of disadvantaged children so that more and more of them can participate in regular programs—academic or vocational—than is now the case. But this is a prescription for the long run.

In the short run, there remains the need for remediation, for young students, older students, and adults. The major responsibility for this remediation has now been given to the school system. Vocational education has an important role to play in remedying the deficit and facilitating orientation of the disadvantaged toward the world of work. But the paramount task remains the provision of the indispensable reading, writing, and arithmetic skills; the bulk of jobs in urban areas in the twentieth century will be of the white-collar variety.[51] This is an appropriate responsibility for vocational education, and one to which it should devote a sizable portion of the new resources being made available at the federal level.

A realistic approach must take into account the ability of existing institutions to cope with the tasks assigned to them and the conflicting demands and pressures to which they are subject. In the light of past performance, one must be skeptical about the ability of the public school system to cope with the multiplicity of tasks assigned to it under the new legislation. Furthermore, we have seen that while other institutions have been willing to tackle the problem of the hard-core disadvantaged and have scored some successes, we are still far from having developed truly effective teaching, counseling, and placement methods.

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[51] For a forceful presentation of this viewpoint, see the testimony by Professor Eli Ginzberg of Columbia University before the Joint Economic Committee of the 90th Congress, 2nd Session, in *Employment and Manpower Problems in the Cities: Implications of the Report of the National Advisory Commission on Civil Disorder* (Washington: U.S. Government Printing Office, 1968), pp. 122-23.

We clearly must also give formal recognition to the differentiation of programs and services already established informally in response to the specific needs of the various disadvantaged subpopulations. This is especially true for the out-of-school disadvantaged. We may have to accept the notion that "creaming" or selective recruitment cannot and perhaps should not be avoided when it comes to programs such as MDTA and New Careers. Maybe they should serve the poor, or the disadvantaged, or even the hard-core, but not the hard-hard core. There is obvious danger, however, in giving program administrators an opening along these lines, which might lead to a perversion of the intent of these programs. But this can be checked through adequate program monitoring and evaluation. For the hard-hard core, the emerging policy of placement with minimal training seems at this point most promising, although a basic education component—preferably tied in with the job-setting—should be included. Reliance on early placement clearly requires a good deal of continuing service, in terms of counseling and other forms of "coping" assistance. For the majority, it would seem that such help, rather than vocational education programs, are most appropriate. Hopefully, the jobs will not be dead-end ones even for the hard-hard core. Experience suggests that here, too, extra funds might be most profitably invested on the staffing of counselors or *ombudsman* positions rather than further educational activities. But these suggestions are made here primarily because the earlier training-oriented alternatives have been relatively unsuccessful with this group, not because we have as yet any reliable long-term evidence of the success of the newer approaches. Perhaps we also will need, more than anything else, to restructure, redefine, and peg at higher wage levels the "dirty jobs" which need to be done and for which little training is required, so as to keep the pool of those who need training or placement within manageable limits. Alternately, we may yet have to look into the solutions which we are so reluctant to consider: the government as the employer of last resort, or subsidized jobs, or guaranteed income plans. It will take time and open minds to reach valid conclusions in this area.

For disadvantaged young people, those in school or recent dropouts, the provision of remedial vocational training is appropriate and should of course be greatly expanded. But the task of the school has to be a manageable one, with programs appropriate to the situation and capacity of the various subgroups of disadvantaged. The problem of matching students and program opportunities is most difficult and a potential sea of troubles because under conventional testing and screening methods, many students would be pushed into programs at levels too low. The goal must be longer and more careful training for the most disadvantaged, not a dumping operation into dead-end programs, an ever-present danger when schools are permitted to "track" or "group" students by ability levels as measured by the school's tests. Most important remains the achievement of the basic literacy goal, under which every student must be taught to read, write, spell, and handle figures so as to be able to function in this society. Where to peg this goal—whether it is realistic to push for a minimum achievement level at the eighth or ninth grade for everyone, or whether somewhat lower goals (such as sixth or seventh grade achievement) represents a more realistic adaptation is a problem which psychologists, educators, and budget officers must decide. Yet here, too, some way must be found to structure programs so that teachers and administrators of average talent and average goodwill can handle them. For example, the notion of residential prevocational centers located in urban areas which would prepare severely disadvantaged students for regular school programs might be a useful one.

There is no doubt that in the past three or four years the special manpower programs for youths (Job Corps and Neighborhood Youth Corps) have come much closer to recruiting the disadvantaged and performing some vocational or job facilitation services than have the public schools; it is also clear that in many cases, exposure to good public school vocational programs would have been a better investment in the future of these youths. Somehow, we must find a way of creating a unified system at the local level which will incorporate the best features of both programs. In many communities, the local interest and talent is available; the greatest obstacle is the need to coordinate programs through many bureaucratic channels and levels. In other cities and in many rural areas, it will require hard work on the part of interested community groups and better persuasion techniques as well as more competent assistance than the federal education agency has been able to muster in the past.

Much will depend, of course, on the actions taken at the state and local level under the mandate of the vocational legislation of 1968. One can only hope that this action will be prompt and responsive to the needs of the disadvantaged community. If the schools fail to deliver the volume and quality of vocational education which this community has come to expect, we may see the kind of disruptions on the vocational education scene which so seriously damaged elementary and secondary education in 1968. Needless to say, such events would only reverse growth and improvement of vocational education which all students, not only the disadvantaged ones, need so desperately in order to cope with the world of work in years to come.

Chapter 11

LESSONS FROM OTHER COUNTRIES

Norman F. Dufty

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Chapter 11

LESSONS FROM OTHER COUNTRIES*

Norman F. Dufty

The visitor to the United States, no matter what his particular field of interest, almost invariably finds something of value, some ideas which he feels can be usefully applied in his own country. On his return home, however, he often finds that there are many institutional factors, most of them of a quasi-political nature, which prevent him from applying these new ideas or which detract from their value when they are applied. Looking at the converse of the argument, there are undoubtedly many features of vocational and technical education in foreign countries which operate very well in their own environment. But their exportability is hard to determine, and the writer approaches the question of what the U.S. can learn from overseas experience with some trepidation.

Technical education in the United States has many admirable features. Those which seem to have the greatest appeal for the foreign observer are the effective use of educational technology, responsiveness to local needs and, apart from apprenticeship programs, careful attention to the relevance of courses for the occupations concerned. In this writer's view one major weakness is the reluctance to use apprenticeship as part of the educational system rather than allowing it to operate almost solely as a facet of the industrial relations system. For this reason a substantial portion of this chapter is devoted to apprenticeship. Although the close linkage of technical education to local community needs has a number of advantages, it also has some disadvantages. In technician training there is no nationally accepted integrated system with clear channels of pro-

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gression and specified alternatives. Retraining arrangements under the Manpower Development and Training Act are also narrowly focused. On the broad front of on-the-job training, recent developments in the United Kingdom suggest that a total approach on an industry-wide basis—one which subsumes all levels of training, including apprenticeship and retraining, among other things—may have considerable merit.

In the following discussion little attempt is made to make detailed suggestions as how overseas experience could be applied in the American context. The determination of exactly what can be applied and the strategy of carrying out this application demands a far deeper knowledge of the grass roots of vocational and technical education in the United States than this writer has at his disposal.

Apprenticeship

To make a meaningful examination of an institution such as apprenticeship, subject as it is to educational, economic, and other influences, it is necessary to consider its historical background.

According to Douglas, colonial apprenticeship had four functions. It was a punishment for debt, a penalty for idleness, a system of poor relief, and a state-directed education system in the sense that masters were required by statute law to give the apprentice instruction in the liberal arts and to inculcate sound morality.[1] The Industrial Revolution in the United States, as in England, changed the status of apprentices and led to their being used as cheap labor. Indeed, by 1806 the Philadelphia cordwainers were regulating apprenticeship and the obvious need to do this was one of the prime causes of growth of the early labor unions. Another general purpose of the unions was the education of apprentices; in New York they organized classes for apprentices as early as 1821.[2] Nevertheless, control over the supply of labor was still the prime purpose of union interest in apprenticeship. For example, in 1868 the president of the National Union of Bricklayers said, "It is only by the limitation of apprentices that we hope to regulate the demand for labor."[3] Much of this attitude remains.

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[1] P. H. Douglas, *American Apprenticeship and Industrial Education* (New York: Longmans Green, 1921), pp. 41-44. Also see M. W. Jernegan, *Laboring and Dependent Classes in Colonial America*, 1607-1783 (Chicago: University of Chicago Press, 1931).

[2] J. R. Commons et al., *A History of Labor in the U. S.* (New York: Macmillan Co., 1918), Vol. 1, p. 77.

[3] Report of the Proceedings of the Annual Conference of Bricklayers, 1868, p. 64, cited by W. Haber, *Industrial Relations in the Building Industry* (Cambridge: Harvard University Press, 1930), p. 137.

Another phase of the labor unions' concern with apprenticeship and vocational education which probably still colors present attitudes was the trade school controversy. The first recorded plant training school was established by Hoe and Co., manufacturers of printing presses, in 1872; the National Association of Builders set one up for the construction trades in 1888.[4] Interest in vocational education increased, and in 1907 the National Society for the Promotion of Industrial Education was formed.[5] Private trade schools were established and were welcomed by employers in the hope that they would remove preparation for the skilled trades from union influence. Douglas makes the caustic comment on the parallel efforts of the NAM that

> The Committees on Industrial Education of the National Association of Manufacturers, during the first few years (1900-1910), devoted nearly all their spare time to the denunciation of the inequalities of the union apprenticeship regulations with a minimum of constructive suggestions.[6]

The employers felt that these trade schools could turn out competent tradesmen without the necessity for on-the-job training, thus eliminating at least the early part of the apprenticeship, the period during which the apprentice is a financial liability. More important, the trade schools bypassed the unions' control mechanisms. However, the attitude of the NAM's committee gradually became more progressive and more tolerant, especially after the chairmanship passed to H. E. Miles of Wisconsin in 1911.[7]

Until the end of the nineteenth century organized labor considered apprentice training to be an employer responsibility. The stimulus for labor to conduct its own programs was not so much the employers' failure to do so as the danger to the unions which lay in the type of program run by the employers. In addition to giving an antiunion bias, the trade schools turned out what Douglas called "quarter-baked workmen."[8] The union bricklaying school in Chicago in 1900 was followed seven years later by classes for carpenters in the same city.[9] Labor also supported industrial education in the schools and favored federal control because it feared employer domination of such programs and believed that it would be easier to influence the federal government than a multiplicity of state and local governments.[10] Having seen the narrowness of the training given by the trade schools, and fully aware of the fact that they could be used to instill an antiunion attitude, the unions decided that education for work and education for citizenship were but two phases of the overall process of education.

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[4] Haber, *Industrial Relations in the Building Industry*, p. 136.

[5] F. T. Struck, *Vocational Education for a Changing World* (New York: Wiley, 1945), p. 193.

[6] Douglas, *American Apprenticeship . . .*, p. 323.

[7] See H. P. Porter, *Practical Apprenticeship* (New York: Conference Board on the Training of Apprentices, 1916), p. 13, for a statement illustrating this change of attitude.

[8] Douglas, *American Apprenticeship . . .*, p. 202.

[9] S. H. Slichter, *Union Policies and Industrial Management* (Washington: The Brookings Institution, 1941), p. 41; Douglas, *American Apprenticeship . . .*, p. 317.

In general, labor has supported both vocational education in the schools and apprenticeship, but the unions have opposed skill fragmentation and any suggestion that vocational education in the formal sense could supplant apprenticeship.[11]

The Current Position

Barbash has pointed out that the actual practice of apprenticeship in the United States departs in several ways from the ideal as set out in official documents.[12] In the first place, most journeymen acquire their status without completing an accepted apprenticeship. Indeed, admission to a craft local is often treated as a form of patronage dispensed to relatives of members. Second, the educational side of apprenticeship is unevenly and indifferently implemented. Related instruction is completely absent in most apprenticeships and its "relatedness" is questionable. Third, the joint apprenticeship committee is often dominated by the union, which is mainly preoccupied with regulating the supply of labor to the craft. Fourth, the contractual ratio of apprentices to journeymen is characteristically not operative.[13] Fifth, there is typically no evaluation or test of trade ability after the completion of apprenticeship.[14]

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[10] L. E. Blauch, *Federal Co-operation in Agricultural Extension Work, Vocational Education and Vocational Rehabilitation* (Washington: U.S. Office of Education, 1933), p. 60.

[11] See M. R. Karnes, "Evolving Concepts of Industrial Education in the Thinking of Organized Labor" (Ph.D. thesis, University of Missouri, 1948), pp. 118-119, 173.

[12] J. Barbash, "Union Interests in Apprenticeship and Other Training Forms," in *Essays on Apprenticeship*, ed. N. F. Dufty (Madison: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1967), pp. 40-41.

[13] See G. Strauss and S. Ingerman, "Public Policy and Discrimination in Apprenticeship," *Hastings Law Journal*, 16 (1965), p. 297.

[14] For further evidence supporting the above comments see G. Strauss, "Apprenticeship: An Evaluation of the Need," in Dufty, *Essays on Apprenticeship*; G. Soundara Rajan, *A Study of Registered Apprenticeship Programs in Wisconsin* (Madison: Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966); and W. Haber and H. M. Levinson, *Labor Relations and Productivity in the Building Trades* (Ann Arbor: Bureau of Industrial Relations, University of Michigan, 1956), ch. 6.

The basic characteristic of apprenticeship in the U.S. today is that it serves two interdependent sets of interests for the craft union. The first is the maintenance of a high wage position and of employment opportunities for its permanent membership. The second is the support of the institutional power of the craft unions by organizing the instructional program around the job specifications of the jurisdictional claim.[15] In view of this, it is not surprising that apprenticeship is not fulfilling its appropriate role. For example, the institutional factors outlined above have hindered the development of apprenticeship in the repair trades, with a consequent deficiency in the quality of workmanship.[16] However, even in its present form, the system can perform a useful function. For instance, as Strauss suggests, the expansion of apprenticeship could play a socially desirable role in providing a form of education for non-college-bound youth and at the same time serve the ends of manpower policy.[17]

European Apprenticeship

Insofar as it is possible to generalize about a continent of disparate nations, the European beliefs on the subject of apprenticeship may be listed as follows:

> 1. The transition of adolescents from full-time education to adult work should, whenever possible, be organized as a period of training in employment.
> 2. There should be special legislation and for each major occupation detailed regulations to determine the relations between adolescent workers and their employers and the standards to be attained in training.
> 3. Public authorities, in close cooperation with employer and worker organizations, or semipublic bodies composed of representatives of industry and the trades, should supervise and control the implementation of these regulations.
> 4. Training should include both theoretical and practical instruction and should be provided within the hours of a normal working week.[18]

European apprentices are, on the average, between 15 and 18 years old. Most of them start their apprenticeships at the age of 15, and the median period of indenture is three years. The majority come from terminal primary education streams or have dropped out of the highly selective high schools. Full-time training in vocational schools is an alternative to industry-based apprenticeship in France and may partly replace it in the Netherlands. In other European countries it plays a secondary or insignificant role.

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[15] Barbash, "Union Interests . . . ," pp. 46-49.

[16] D. Christian, *An Assessment of Apprenticeship* (Washington: U.S. Government Printing Office, 1964), p. 626.

[17] Strauss, "Apprenticeship: An Evaluation . . . ," p. 35.

[18] CIRF, *European Apprenticeship* (Geneva: International Labor Office, 1964), pp. 10-11. This study was the major source of data for this section.

Apprenticeship schemes in Austria, Denmark, West Germany, and Switzerland closely resemble each other. The majority of school-leavers under the age of 18 years go into some form of apprenticeship, usually under three- or four-year contracts. All four systems are regulated by detailed administrative rules applying basic general legislation under the control of public or semipublic bodies with the active participation of employer and worker organizations. In these countries apprenticeship is a separate and largely autonomous part of the education system. Apart from Denmark, where there is an obligation on employers and apprentices to conclude a legal contract, the dominant role of apprenticeship is the result of a spontaneous choice on the part of employers, parents, and young people.

In most respects the situation in the United Kingdom is quite different from the above. There is little public control, no legislative framework, and no test of proficiency at the end of the apprenticeship, and provisions for related instruction are not strictly enforced. Legislation in France, on the other hand, resembles that in the first four countries mentioned above, and part-time related instruction and general education in vocational schools is compulsory for all young people below the age of 17. The major difference lies in the fact that skilled worker qualifications can be acquired in several ways—full-time training in public or private vocational schools or serving an apprenticeship in an undertaking. However, the training period is three years in each case, and all trainees in industrial crafts sit for the same examinations.[19]

In Holland about a third of the children completing primary school at the age of 12 or 13 go to junior technical schools for a further three years. Half of these go into apprenticeships, which they can complete in two or three years. Those who remain in primary school to the age of 14 (the minimum school-leaving age) may subsequently serve an apprenticeship of three or four years.

The Czechoslovakian Apprentice Act of 1958 specified that an indentured apprenticeship was the only way for young people to become skilled workers.[20] Nearly two-thirds of all young people leaving school at the minimum school-leaving age of 15 go into apprenticeships. Large organizations employing many apprentices have their own schools which give both theoretical and practical instruction. Smaller ones give only the required practical training; the related theoretical instruction and general education are given in public vocational schools.

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[19] See Assemblée des Présidents des Chambres de Métiers, *Etude sur la Fonction des Chambres de Métiers Concernant l'Organisation de la Formation Professionnelle* (Paris: APCMF, 1963).

[20] For an English translation see International Labor Office, *Legislative Series* (Geneva: ILO, 1958), Ch. 3.

West Germany—An Example

Of necessity, the above description of European apprenticeship was superficial. West Germany is selected as an example of a country with a well-established apprenticeship system worthy of more detailed examination.[21]

Germany makes a distinction between industry and commerce on the one hand and "artisan" businesses on the other. In 1961-62 there were over half a million apprentices in the former group, the most important subgroups being various types of clerical worker (204,000), retailer (191,000), and fitter mechanic (45,500). The latter group contained a little over a quarter of a million apprentices, the most important subgroups being auto mechanic (54,600), hairdresser (53,600), electrical fitter (38,500), and bricklayer-stonemason (28,700).

At the federal level the ministry concerned with apprentice training is the Ministry for Economic Affairs. Related instruction and general education are provided in public vocational schools and are therefore the responsibility of state ministries of education. Two parallel administrative structures have developed for organizational activities—drawing up trade lists, preparing training regulations, registering apprenticeship contracts, etc. For industry and commerce the responsibility rests with the German Council for Industry and Commerce (DIHT), representing at the national level eighty-one chambers of industry and commerce. Training regulations and standard teaching materials are prepared by the Central Office for Industrial Training sponsored by the DIHT in collaboration with the Federation of German Industry and the German Confederation of Employers' Associations. For detailed work, ad hoc expert committees are used which include educators and representatives of both employer and worker organizations. The same functions for the artisan trades are carried out by the Institute for Training in Artisan Trades and the Institute for Artisan Trades Technology under the aegis of the German Association of Chambers of Artisan Trades.

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[21] Main sources of information were CIRF, *European Apprenticeship*; G. Williams, *Apprenticeship in Europe* (London: Chapman and Hall, 1963), ch. 2; and Birmingham Productivity Association, *Gaining Skill* (Birmingham: The Association, 1955).

The organizational structure of apprenticeship is based on lists of trades approved by public authorities. The recent trend is toward the broadening of basic qualifications rather than specialization. Between 1947 and 1962 no fewer than twenty-eight apprenticeable occupations were combined to form eight new, broader trades; 163 industrial, and ten commercial trades were deleted as being obsolete or overspecialized, leaving a total of 445. Less than 10 percent of the proposed 400 new trades were recommended for recognition by the Central Office for Industrial Training.

The training regulations for the trade of electrical and electronics fitter may serve as an example of the more comprehensive type of regulation. The whole is a fifty-page booklet issued to both employers and apprentices.[22] The first part is a two-page job description defining the limits of the field and listing options. The second part is a forty-six-page training syllabus outlining the basic manual skills to be acquired; wiring and winding jobs; assembly, testing, and running different types of equipment; and electrical and mechanical measuring techniques. Special emphasis is laid on safety regulations, "trouble-shooting" techniques, and the maintenance of tools and equipment. Examples are given of the type of work to be selected for instructional purposes and of how the training might be planned for the various options and in different types of organizations. The third and final part consists of examination standards. It describes the nature of the specimen job to be done by the apprentice during the twenty-four-hour practical test and specifies the subjects to be covered in the oral and written theoretical examinations in trade technology, technical drawing, mathematics, civics, and economics.

Evening classes for apprentices in Germany were replaced by compulsory day-release classes in 1919. Generally, apprentices attend classes for one day or two half-days per week or, in some cases, a day and a half per week. The vocational school is intended to do much more than provide the theoretical basis for the practical training. Additional objectives include preparing the apprentice to take his place in political, economic, social, and cultural life; developing his intellectual capacities; and establishing a sound moral foundation.

Practical training is carried out by the employing organizations, and nearly half the apprentices in Germany receive at least part of their training in company schools or training shops. The proportion may be over three-quarters in some industries—the metal trades, for example. There are a number of arguments in favor of the training workshop. First, it is separate from the dangers and pressures of regular production work and makes the transition from school to work much easier. Second, basic skills are better learned systematically under the supervision of experienced instructors. Third, the inexperienced apprentice is better removed from the production process if he is to learn good work habits and safe working practices. The general pattern is three to twenty-four months in a training shop followed by planned work experience to initiate the apprentice into the rhythm and pressures of production. The apprentice is given a workbook in which he must describe what he has learned week by week. The employer is under a legal obligation to examine this record and add his own assessment to it. This workbook is open to inspection by officials of the appropriate chamber of industry, commerce, or artisan trades. Considerable attention is paid to those who have responsibility for training apprentices in industry. Firms must be approved and have instructors holding a *Meisterbrief*—a master craftsman's certificate obtainable only after five years industrial experience and additional education.

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[22] Arbeitsstelle für Betriebliche Berufausbildung, *Berufsbild, Berufsbildungplan, Prüfungsanforderungen—Elektromechaniker* (Bielefeld: Bertelsmann, 1963).

The important social and economic function of maintaining adequate channels of upward occupational mobility is materially assisted by the personnel practices of many large organizations with respect to apprentices. For example, at Krupps the boys selected for apprenticeship are divided into four groups containing about 25 percent, 45 percent, 20 percent, and 10 percent of the apprentices, respectively. Placement into the groups is based on educational reports, tests, and interviews. The first six months of the course is broad and the same in range for all groups but varying in depth. During the next two months a check is made, and those in the bottom group complete only one year of training. Some of the next group do another year and become specialized tradesmen. The remainder of these and the two top groups cover the full range. The top group of 10 percent contains some who will proceed to university or similar tertiary institutions, and the second group of 20 percent is a source of potential technicians and foremen. Furthermore, no apprentice need feel that he has come to "the end of the road." A one-year trained apprentice who demonstrates that he can go further may be admitted to the next stage.[23]

In cases where small firms make up the bulk of an industry, special arrangements are made. For example, the Lehrbauhof of Essen Berge-Borbeck was established forty years ago and is financed by the Federation of Building Employers. The apprentice spends his first six weeks in the Center being instructed in the basic elements of his trade. He then works with a building organization to gain practical experience, returning to the Center from time to time for further periods of full-time instruction. Similar arrangements exist in small, highly specialized industries. For instance, the sugar confectionery industry has set up its own Central Technical School and, because it draws apprentices from all over Germany, hostel accommodation is provided.

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[23] I am indebted to Dr. H. S. Williams for the information on Krupps.

Examinations have two roles: they are a visible means of controlling the effectiveness of training in the undertakings, and they are a means for apprentices to obtain a nationally recognized qualification. In Germany, as in many other European countries, examinations are held at the skilled worker level and at a higher level—the master craftsman in the artisan trade. The latter was planned to meet the needs of the small firms, and the inappropriateness of this for large organizations led to the institution in the early 1950s of a special industrial supervisor examination and a two-year course leading to it. Boards of examiners are usually appointed by the chamber concerned and usually consist of a person representing the employers, an independent trade specialist, and a workers' representative, with a vocational teacher as an associate member. The practical test specimen in trade examinations is either a job selected by the employer in the artisan trades or a standard specimen job set by a chamber, a regional authority or at the national level. The test is usually carried out in a large factory or training workshop made available for the purpose. For most industrial trades the written examinations are in trade technology, blueprint reading, mathematics, and auxiliary subjects such as safety and health regulations and labor legislation. The written papers are from two to four hours' duration.

German apprentices receive wages which are quite low by American standards, even when calculated as a percentage of the journeyman's wage. For a 15-year-old apprentice this may be as low as 10 percent of the journeyman's rate, rising to around 70 percent in the last year of the apprenticeship. At least until recently, the value of services rendered by apprentices, estimated at the level of remuneration of an adult worker, was higher than the outlay on them.[24] Apprentice wages are generally regarded as training allowances and are exempt from payroll tax.

Lessons from Europe

In outlining European apprenticeship schemes in general and those of West Germany in particular, no suggestion is made that any of them constitutes an "ideal type" in the Weberian sense, quite apart from the impossibility of dissociating them from their institutional and economic contexts. For example, in the case of West Germany, Williams has questioned the advisability of maintaining the distinction between artisan and industrial/commercial apprenticeships.[25] Lempert and Ebel have criticized many aspects of the system and in particular the practice of having nearly the same length of apprenticeship for all trades and occupations,[26] although Germany is far less rigid than Great Britain or Australia on this score.

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[24] Neins, "Das Kosten problem in der Betreiblichen Berufsansbildung," *Der Arbeitgeber* (1960), pp. 658 et seq.

The major reasons for the popularity of apprenticeship in West Germany and elsewhere in Europe are the generally serious attitude toward industrial training, the social prestige of the qualified tradesman, and the flexibility of the system, which allows it to adapt to technical change. The lessons to be learned may be enumerated as follows:

> 1. The full benefit of apprenticeship as an educational process can be achieved only if control is vested in a public or semipublic body on which employers, unions, and education authorities are represented. The domination of the system by unions or employers focuses attention on control over numbers and leads to neglect of educational issues. General education is likely to be completely ignored in this situation. On the other hand, the practical politics of industrial life insist that apprenticeship cannot be left solely in the hands of the educators. Economic factors cannot be ignored, especially control over supply.
> 2. The clear and detailed specification of what is to be learned, and the policing of this insofar as it is possible by the use of a workbook as in West Germany, for example, helps to ensure thorough practical training. This is also assisted by the requirement that firms must be approved and have appropriately qualified personnel before being permitted to take on apprentices.
> 3. For educational reasons, apprenticeship should be entered straight from school, thus using it as a transitional phase in the progress of the adolescent from school to work. Precise matching of supply and demand is hardly feasible, but an excess of supply over demand is not widely feared in Europe, where apprenticeship ". . . is no longer essentially a system of training for a career in a particular trade. It has increasingly taken on the role of a system of work-oriented education for out-of-school youth. . . . [C]ontinuation in the trade is, in many cases, no longer the intention or even the normal outcome of training."[27]

The truly educational role of apprenticeship is perhaps the most important lesson to be learned. The writer holds a view—which will undoubtedly be considered heretical in some quarters—that there is a limit to the amount of formal education that can be usefully given to young adolescents having certain characteristics of personality and intellectual capacity. Young people of this type are happier and probably learn more in the reality-oriented world of work, and apprenticeship provides this atmosphere as well as adding to it a deliberately educational component.

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[25] Williams, *Apprenticeship in Europe*, p. 41.

[26] W. Lempert and H. Ebel, *Lehrzeitdauer, Ausbildungsystem und Ausbildungserfolg* (Freiberg: Verlag Rombach, 1965).

[27] CIRF, *European Apprenticeship*, p. 182.

Commencing apprenticeship at an early age also has a number of economic advantages. Wage rates high enough to be attractive to adolescents can be paid without making the apprentice a hopelessly uneconomic proposition to the employer. An early start in apprenticeship and its widespread use would help to solve the problem of youth unemployment. In addition, an apprentice contributes more to the net social product than a discontented high school student.

Obviously, even if the lessons noted above are acceptable, the problem of changing an established system is by no means an easy one, no matter whether it is apprenticeship or anything else. The only feasible strategy is gradual reform, aided by pressure from state and federal governments, perhaps in the form of differential benefits.

Technician Education

The standard of technician education in the United States is very high, and there is little doubt that this makes a significant contribution to the overall productivity of the American economy. One of its few defects is its lack of structure, and in this respect something may be learned from the British experience, especially the National Certificate System, which has been the lynch-pin of technical education in that country since 1921.[28]

In Britain one of the most valuable features of the system has been its role in providing a stepping-stone for part-time day and evening students en route to professional qualifications. Many people will regret that its future in this respect is limited, at least so far as engineering is concerned, but its importance in technician training is unchallenged.

There have been critics of the system, mainly because, in true British fashion, it has evolved in a rather piecemeal fashion.[29] However, its ability to evolve has been a source of strength, enabling it to adapt to technological change. For example, the present decade has seen a distinct trend away from the compartmentalized study of scientific subjects, a trend that has been reflected in the structure of the new general course in science. The new course was largely a response to pressure from curriculum reformers such as the Science Masters' Association,[30] together with support from the Federation of British Industries.[31] It will be described in some detail as it illustrates the general principles of the National Certificate System.

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[28] R. T. Briggs, "Some Aspects of Developments in Science Courses in FE Establishments," *Technical Education and Industrial Training*, 9 (1967), pp. 154-62.

[29] W. H. Lovell, "Examinations for National Certificates," *Technical Journal* (New Series), 1 (1963), p. 13; R. Hewitt, "National Certificate Nonsense," *Technical Education and Industrial Training*, 6 (1964), p. 182; P. E. Foden, "The National Certificate," *Vocational Aspects*, 3 (1951), p. 45; also his "Activity Methods in Further Education," ibid., 4 (1952), p. 33.

Administrative Memorandum No. 3/64, issued by the Ministry of Education on March 20, 1964, introduced the Ordinary National Certificates and Diplomas in Sciences. The General Course in Science forms the base of the structure, providing a diagnostic period to help the student decide whether he is better suited for a Technician or a National Certificate Course—regarding the latter as a higher technician qualification. This basic course is a one- or two-year part-time or block-release course, depending on the entry standard. Alternatively, entry can be through the General Certificate of Education or a Grade 1 Certificate of Secondary Education.

The chemical technicians' courses are designed to meet the needs of technicians in the chemical industry. Greater emphasis is given to practical techniques, the development of powers of observation, and the recording of results and less to academic content than in the National Certificate course.

The Ordinary National Certificate in Sciences has as its philosophy breadth and integration. The course is designed for part-time students with a minimum of 480 hours spent on scientific and technical subjects and with about 90 hours spent on English and general studies in each year. At least 360 hours must be in mathematics, chemistry, and physics; the remaining 120 hours are in an elective subject, an extended study of one of the basic sciences, or a subject geared to the needs of local industry. The parallel course for full-time students, on a sandwich basis or otherwise, occupies at least 2,000 hours with a minimum of 1,400 hours for the study of chemistry, physics, biology, and mathematics in addition to 250 hours allotted to applied studies related to one or more of these subjects and 90 hours in each year to English and general studies. This is called the Ordinary National Diploma in Sciences.

Either the Ordinary National Certificate or the Diploma, if completed with appropriate passes at the required standard, may be used to qualify the holder for University entrance or for proceeding to the Higher National Certificate or Diploma. The alternative route to the University or the Higher National Certificate or Diploma is the General Certificate of Education with appropriate advanced and ordinary level passes, normally taken at the conclusion of the final year in high school.

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[30] Briggs, "Some Aspects . . . ," p. 156.

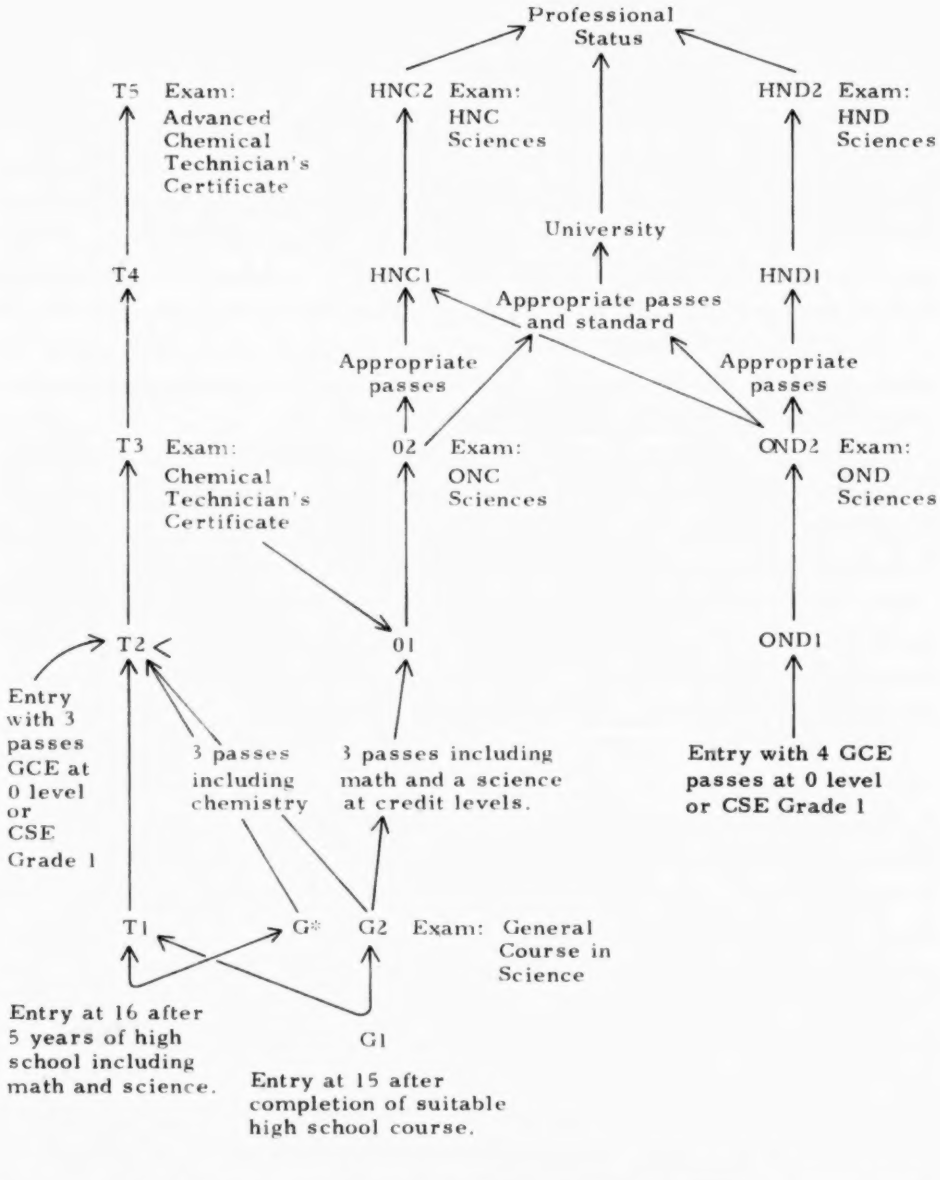
[31] Federation of British Industries, *Higher Education, Evidence to the Government Committee,* November 1961, p. 3, para. 2.

The main feature of the system is its flexibility, allowing entry to various courses by full-time high school or part-time or full-time education in other types of institution. Transfer from high level to lower level technician courses is facilitated, and students demonstrating competence in the higher technician courses can proceed to full professional status by examinations or by transfer to the University. The system is shown schematically in Figure 11-1.

Although both the Chemical Technician's Course and the General Course in Science are administered by external examining bodies, the National Certificates and Diplomas remain local or regional. Generally speaking, there are three organizations concerned—the Department of Education and Science, the teaching institution, and the appropriate professional body or bodies. Operating rules are laid down by the Department of Education and Science after consultation with the professional organizations. Originally the final year papers were subject to the scrutiny of assessors appointed by the Department of Education and Science and the professional bodies, but more recently there has been a trend toward local and regional examining unions, as noted above in the case of the National Certificates in Sciences.

The advantages of a system such as the one outlined above over one which is completely decentralized are several. In the first place, it is flexible and provides alternative routes to technician qualifications with the possibility of progression to professional status on the basis of superior performance, even though this is becoming increasingly difficult outside the university structure. This principle recognizes that, due to a variety of circumstances, individuals mature academically at different ages or that economic circumstances may prevent a person from graduating from high school in the usual way. Second, it provides a qualification which is recognized on a national basis and which is the fruit of discussion by the most able people in the particular field of technical education. Third, it allows for some modification according to local needs while at the same time preserving a nationally recognized standard and avoiding undue parochialism and narrow specialization.

FIGURE 11-1. Basic Structure, Technician and Higher Technician Courses.


Professional Status
T5 Exam: Advanced Chemical Technician's Certificate
HNC2 Exam: HNC Sciences
HND2 Exam: HND Sciences
University
T4
HNC1
Appropriate passes and standard
HND1
Appropriate passes
Appropriate passes
T3 Exam: Chemical Technician's Certificate
02 Exam: ONC Sciences
OND2 Exam: OND Sciences
T2
01
OND1
Entry with 3 passes GCE at 0 level or CSE Grade 1
3 passes including chemistry
3 passes including math and a science at credit levels.
Entry with 4 GCE passes at 0 level or CSE Grade 1
T1
G*
G2 Exam: General Course in Science
G1
Entry at 16 after 5 years of high school including math and science.
Entry at 15 after completion of suitable high school course.

Source: **R. T. Briggs, "Some Aspects of Developments in Science Courses in FE Establishments,"** ***Technical Education and Industrial Training,*** **9 (1967), p. 158.**

The adaptation of such a system to the American scene, for geographic and quasi-political reasons, would require a greater degree of decentralization than is necessary in Great Britain. Participation by technical institutes, junior and community colleges, etc., would be on a voluntary basis, with state technical education authorities acting as the link to a federal body. The extent to which participation was achieved would depend largely on the quality of courses so developed and their acceptance by employing organizations.

Retraining

The term *retraining* will be used here to cover all categories of vocational training for people with prior labor market experience as distinct from the training of adolescents about to enter the labor market. It would therefore include vocational training for adults who had never received any such training, vocational training for those whose skills had become obsolete due to changes in the structure of labor demand, and refresher programs. From the social standpoint, the third category is comparatively unimportant.

European legislation on retraining was designed largely to increase the employability of the unemployed, facilitate the return of veterans to civilian employment, and help to relieve the shortages of labor anticipated in certain occupations. Nevertheless, most countries now regard these policies as permanent instruments of labor market adjustment. The retraining programs are usually administered by the ministries of labor, but the way in which this responsibility is exercised differs substantially from country to country.

Most European countries have retraining programs of one sort or another, but the writer is inclined to agree with Margaret Gordon that the French experience has the most to offer in this respect.[32] Before describing this in some detail, a brief outline will be given of the situation in a number of other European countries. In Belgium, the Netherlands, and the United Kingdom most of the training is conducted in government training centers, but in West Germany and Italy other organizations and agencies have carried out the training on a subsidized basis. In Belgium the decision to emphasize government training centers was made only after disappointing experiences with employer-sponsored training.[33] The Belgian centers are generally regarded as temporary installations to be set up or disbanded in response to labor market needs. The Dutch centers are more permanent and are supervised by a bureau of vocational training within the employment office of the Ministry of Social Affairs and Public Health. West Germany has set up a corporate body managed by an administrative council and an executive board, both of which include representatives of employers and unions. This body, the *Bundesanstalt für Arbeitvermittlung und Arbeitslosenversicherung*, usually known as BAVAVG, is under the supervision of the Ministry of Labor. It carries out some training activities itself and also uses technical colleges, vocational schools, or training centers sponsored by employer associations or unions. BAVAVG's role is to police technical standards and to provide financing in proportions which vary greatly from case to case.[34] In Italy, detailed administration of a broad range of government-sponsored courses is delegated to the *Instituto Nazionale per l'Addestramento ed il Perfezionamento dei Lavoratori della Industria*, known as INAPLI.[35]

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[32] M. S. Gordon, *Retraining and Labor Market Adjustment in Western Europe* (Washington: U.S. Government Printing Office, 1965), p. 197. This volume was the main source of information for this section apart from other acknowledged sources.

[33] International Labor Office, *Vocational Training of Adults in Belgium* (Geneva: ILO, 1949), p. 25.

As a general rule there are advisory committees consisting of employer, union, and public representatives which make recommendations on training programs and other aspects of manpower policies. Similar committees may be attached to local and regional offices; in the United Kingdom the selection of individual candidates for training is subject to the approval of these local committees. Local initiative is also apparent in West Germany, where proposals for training programs stem from local employment offices.

Admission to training programs in most countries is confined to the disabled and the involuntarily unemployed, although France and the United Kingdom are exceptions. Upper age limits are usually imposed, varying from one country to another. Selection tests are used and by their very nature tend to discriminate against the older worker. Belgium, West Germany, and the United Kingdom make less use of tests than the other three countries.

In France retraining is carried out in community training centers managed and financed by a semi-governmental body, the *Association Nationale Interprofessionelle pour la Formation Rationnelle de la Main d'Oeuvre*.[36] ANIFRMO is administered by a managing board of eighteen members, six of them are appointed by the employers, six by the trade unions, and six by the Ministry of Labor and Social Security. The latter provides the funds for the operation of the training centers and lays down the rules under which vocational training at the centers is to be conducted. The functions of ANIFRMO relate to the detailed administration of the centers, the development and supervision of training methods and materials, and the education of instructors.[37] Centers vary in size and in the range of occupations covered. The larger ones have dormitories and medical facilities and cover thirty to forty trades, although the average is about fifteen. Each *département* has a manpower committee which maintains contact with the local labor market through special committees representing the various trades. These committees meet monthly to consider the training needs in their *départements* and make reports and recommendations to the national labor market authorities. Nationwide training needs are considered by similar specialized advisory committees attached to ANIFRMO in Paris.[38] Longer-term forecasts are made by the *Commissariat du Plan*.

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[34] OEEC, *Accelerated Vocational Training for Unskilled and Semi-Skilled Manpower* (Paris: OEEC, 1960), pp. 166 et seq.

[35] Ibid., p. 321.

[36] This body will be referred to as ANIFRMO in the discussion below.

Perhaps more than any other country in Europe, France has emphasized technical occupations in its retraining program. Under the *Loi de Promotion Sociale* of 1959 a category of "second-degree" training was created to include these occupations.[39] Trainees receive an *allocation complémentaire* which brings their total training allowance up to 80 percent of their former earnings. Because of the educational prerequisites for such programs, most of the trainees are young. It is interesting to note that the second-degree training provisions include the training of instructors so that skilled workers who wish to prepare themselves for jobs as instructors are eligible for the extra allowance mentioned above.[40]

Gordon has commented that decisions on the establishment of training centers and the types of training to be offered are made at the national level. Information flowing from the local level certainly influences these decisions, but the final determination does not appear to take the form of approval or disapproval of specific training proposals originating at the local level. The committee composition tends to give substantial representation to employers and unions in the building and metal trades, thus militating against the expansion of the program to include other types of training.[41] On the other hand, the French procedure is less rigid than that specified by the U.S. Manpower Development and Training Act. Under these provisions the local employment office has to demonstrate that there is a shortage of workers in the particular occupation in a local labor market area.[42] It is also necessary to show that there are unemployed persons in the area suitable for retraining. If these two conditions are present, local education authorities review available facilities and develop a curriculum. The proposal is put in a final form and goes through various stages of review.[43] The major defect in this procedure is that it is likely to be particularly difficult to identify enough labor shortages in depressed areas to provide suitable training opportunities for qualified unemployed persons.[44] In addition, the procedure is time-consuming. The French system, as operated by ANIFRMO, takes a broader view and implements regional and national rather than local policies. Because it uses its own specialized centers rather than depending on facilities of local vocational education authorities, its response is more rapid and its methods are more closely geared to the training of adults than is the case with training under MDTA schemes.[45]

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[37] OEEC, *Accelerated Vocational Training* . . . , pp. 213-16; E. Rossignol, "The Vocational Training of Adults," *International Labor Review*, 76 (1957), pp. 14-20; and C. Bettelheim, "Economic and Social Policy in France," ibid., 54 (1946), pp. 139-59.

[38] Gordon, *Retraining and Labor Market Adjustment* . . . , p. 32.

[39] See *Revue Francaise du Travail*, 13 (1959), pp. 3-31.

[40] Gordon, *Retraining and Labor Market Adjustment* . . . , p. 136.

[41] Ibid., pp. 148-49.

On-the-Job Training

Since 1945 Britain has been successful in maintaining a high level of employment, at times moving into what most people would regard as over-full employment. At the same time severe shortages of most types of skilled labor have become evident. Over-full employment is hardly a serious problem in the United States, nor is there a general shortage of skilled labor. However, there certainly are shortages of specific categories of skilled labor, and there is also the broad social problem of a lack of marketable skills in a number of disadvantaged groups—Negroes, workers displaced by technological change (especially older workers), etc. In this respect the British experience with their Industrial Training Act of 1964 may have some relevance for the United States.

British concern with the shortage of skilled labor led to the appointment of the Carr Committee in 1956, a body which concentrated most of its attention on traditional apprentice training. The Committee's report led to the establishment of the Industrial Training Council in 1958 by the Trades Union Congress, the British Employers Confederation, and the Boards of the Nationalized Industries. The Council's scope was considerably wider than that of the Carr Committee, covering all industrial training. However, its role was limited to the provision of information and encouragement, and it is not surprising that its impact was small. By 1962 it had become apparent that if the shortage of skilled labor which seemed to be retarding economic expansion was to be dealt with quickly, powers of inducement backed by legislation would be necessary. A White Paper outlining a proposed Industrial Training Bill was published in 1962,[46] and this bill was enacted in March 1964.

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[42] See *Training Activities Under the Manpower Development and Training Act,* Report of the Secretary of Health, Education, and Welfare to the Congress (Washington: U.S. Government Printing Office, 1963), p. 28.

[43] *Manpower Research and Training, A Report by the Secretary of Labor,* transmitted to Congress March 1964 (Washington: U.S. Government Printing Office, 1964), pp. 9-10.

[44] Gordon, *Retraining and Labor Market Adjustment* . . . , p. 154. Also see S. A. Levitan, *Federal Manpower Policies and Programs to Combat Unemployment* (Kalamazoo, Mich.: W. E. Upjohn Institute for Employment Research, 1964), especially p. 21.

[45] See Rossignol, "The Vocational Training of Adults."

The main objectives of the Act were to ensure that both the quantity and quality of the training provision were adequate to meet the needs of industry and to see that the costs of this training were fairly shared among employers. It is primarily an enabling Act which gives the Minister of Labor power to appoint Industry Training Boards and regulates the duties and powers of such Boards. The Minister must consult with employer and employee representatives in an industry about the scope and membership of a Board before it is established. As general principles, the chairman must have industrial or commercial experience, equal numbers of employer and employee representatives must be included, and a number of educational representatives must be appointed. Government members may attend meetings but have no voting rights.

The main powers given to Industry Training Boards are as follows:

1. A Board must levy employers to cover administrative costs, any direct training costs incurred directly by the Board, and the cost of grants made to firms. Levy proposals must receive Ministerial approval and be laid before Parliament. Special tribunals may be appointed to hear appeals against levies.
2. The Board may make grants to those companies who make training arrangements meeting the Board's approval, but there is no legal obligations on any firm to make such arrangements.
3. Firms are required to keep records and make returns to enable them to be assessed for levy.
4. Boards may appoint committees and delegate any nonfinancial powers. They may also appoint staff to undertake administration, office work, inspection of training arrangements, and other duties.

The Act also requires the Minister to appoint a Central Training Council to advise him on the administration of the Act and on industrial training matters generally. The Council must consist of a chairman, six employer and six employee representatives, two representatives of nationalized industries, educationists, and up to six chairmen of Industrial Training Boards. The Council considers proposals for the establishment of Industrial Training Boards, reviews the performance of existing Boards, and considers matters of general interest, such as training methods.

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[46] *Industrial Training: Government Proposals*, Cmd. 1892 (London: HMSO, 1962).

The scope of the Act is quite wide. It applies to all industries—service, distribution, banking, insurance, agriculture, etc., as well as manufacturing. All levels are covered—managerial, supervisory, skilled, semiskilled, and even so-called "unskilled" workers. It also applies to all ages—young workers and apprentices as well as adults in any age group who require training or retraining, especially those whose jobs have been eliminated by technological change.

The policies of the Boards on levies vary considerably. That covering the iron and steel industry levies approximately $15 per worker employed, but the majority base the levy on payroll, varying from 0.5 percent in the construction industry to 2.5 percent in engineering. Policy on grants also varies. The engineering industry has a point system for calculating the grant payable for certain items such as selection procedure, training records, basic training centers, etc. Variable grants relating to actual costs, such as college fees for training officers, may also be awarded. The construction industry has a similar policy for variable grants but awards fixed sums for some items, for example, approximately $160 per year for each apprentice who attends a day-release course at a technical college.[47] The total grant to a company may exceed the levy paid by a company by as much as 600 percent. The Board itself may provide training centers for the industry or pay other agencies, such as technical colleges, to do so.

Meade expresses the hope that the Act may eventually establish that employers have a positive responsibility for providing training and that training and further education can be coordinated without being merged. He also feels that the Act's insistence on the sharing of responsibility will result in the gaining of the positive involvement and commitment of all those whose participation and contribution will be necessary to ensure the full development of effective training.[48]

In the United States the general philosophy is that company expenditure on training is a matter for rational decision-making on the basis of balancing costs against benefits. This was also the British view prior to the sustained high levels of employment in the postwar era. These labor market decisions encouraged companies to poach skilled labor. To quote a government spokesman:

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[47] J. P. de C. Meade, "The Industrial Training Act 1964 in Great Britain," in *Conference Report, Pan Indian Ocean Conference on Technical Education and Training* (Perth: Western Australian Government, 1966), pp. 84-91.

[48] Ibid., p. 91.

> We can no longer remain tolerant of the employer who refuses to do his share of industrial training. Too many employers are still in this category. It has often been cheaper for them to pay a little more on the hourly rate for skilled workers than to invest in a training scheme. In this way they have poached the skilled people trained by other firms. This type of employer will get a salutary shock when he finds himself paying the new levies.[49]

Obviously, the return on training expenditure depends on the productivity of the trained labor and the length of time it is retained. Any increase in the turnover of such trained labor will lead to the decision to spend less on training, a decision rational for the firm but not for the industry or the national economy.

Admittedly, such conditions are not likely to occur in the United States, but the policies and procedures of the Industrial Training Act would be readily adaptable to the retraining of workers displaced by technological change and to the financing of an expanded program of apprentice training.[50]

Conclusions

In sum, the lessons to be learned from overseas experience may be enumerated in brief as follows:

1. Apprenticeship can function as an important and socially useful branch of the educational system. In order to achieve this, a substantial measure of public control must be introduced, even though employer and union influence remains strong.
2. Technician training would benefit from the operation of an integrated system allowing branching from a common root into lower and higher technician programs. Routes to full professional status could be left open for those capable of taking advantage of them.
3. Retraining could well be undertaken on a national and regional basis; this would benefit both the individual and the community.
4. An industry-wide approach to on-the-job training, which would cover apprentice programs and retraining as well as other aspects of the subject, would have considerable merit in raising the general level of training.

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[49] Reginald Prentice, quoted by J. Willens, "Implementing the Act . . . A Progress Report, 4," *Technical Education and Industrial Training*, 7 (1965), p. 208.

[50] For a more detailed discussion, see G. B. Hansen, *Britain's Industrial Training Act: Its History, Development and Implications for America* (Washington: National Manpower Policy Task Force, 1967).

Chapter 12

COMPREHENSIVE EDUCATION: REDEFINED FOR A HUMANIST SOCIETY

Marvin J. Feldman

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Chapter 12

COMPREHENSIVE EDUCATION: REDEFINED FOR A HUMANIST SOCIETY*

Marvin J. Feldman

The aims and procedures of public education are today, more than ever, a proper subject for scientific inquiry. "Inquiry," however, should by no means be confused with inquest. A society confronted with problems needs a villain to blame. In America the search for a scapegoat has led to the public schools. As for myself, I take pride in a public school system that through the years filled its *major* commitment to provide education for the many rather than for the few. In today's society, however, not "the many" but *all* of the nation's youngsters must be educated.

The system of American public education developed in response to manpower needs in the nation. In a more leisurely, bygone era, the educational community had little difficulty in responding to the requirements of government and industry without sacrificing its attention to the diversified needs and interests of the students themselves. But today's educational community has thus far failed to come to grips with the fast-breaking technological developments of the mid-twentieth century, with pressures from both the affluent middle class and the aroused Negro minority for more and better education, and, more importantly perhaps, the demands of public school youngsters themselves to learn more how to cope with the problems of social, racial, and intergenerational conflict.

In 1825, the first compulsory education law, in the Commonwealth of Massachusetts, applied to children between the ages of 8 and 14.

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* Paper presented to the Anglo-American Conference on Secondary Education, May 11-13, 1968, Princeton, N.J.

Today, education is universally applicable to all children between the ages of 6 and 17 in the United States. This system is calculated to take them from the first grade through high school, but in actuality, three out of ten fifth graders drop out before graduation from high school. Of those who do graduate, only half are enrolled in some sort of post-secondary education, and of these, only half, in turn, receive a degree or diploma.

But constantly larger numbers of high school graduates are seeking some kind of higher education, a new prerequisite for first-class membership in a society such as ours—a right rather than a privilege. The way must be opened to them.

Three major efforts to restructure and renew education are now beginning to take shape throughout the nation. The first deals with the expansion of educational opportunities, particularly for the children and adults of minority groups. The second seeks to maximize the effectiveness of educational efforts by tailoring them to the individual. The third is an attempt to improve educational techniques, especially teaching procedures.

We believe that truly comprehensive education is the key to the successful culmination of these efforts and will open the way to universal higher education for all or—more accurately—to universal *quality* higher education. For it is my contention that extension of educational opportunities need not and should not impair the quality of education. The nuclear space age demands nothing less. An affluent society owes at least this much.

It is our aim, then, to help more students complete their high school education, more high school graduates to be accepted at institutions of higher education, and more of these who are accepted to win their college degrees and technical diplomas. I hope to show that this can be done by improving rather than watering down the quality of education at all levels. I hope to show that the more recent financial investments in education have for the main failed because the new programs have been placed in a crumbling model of education that is already out of date, out of touch, and out of balance.

History

One of the praiseworthy features of American public education is that—despite its slow rate—it never stands still. It is always in a state of flux, always renewing itself. This can best be seen if current problems are viewed in the context of history.

In agrarian America, and in the early stage of the industrial revolution, education had two primary functions. The first was to provide the basic literacy necessary for purposeful participation in the democratic processes. The second was to facilitate the acculturation of the masses of immigrants of many languages and backgrounds who forged the unique democratic experience that is America. Beyond the achievement of these two fundamental objectives, literacy and acculturation, education served as a selecting-out process. It identified the few who aspired to professional positions in a primitive economy, seeing them beyond the common school into a "high" school that was preparatory to university education.[1]

In the late nineteenth century, in answer to the need for professional competence in an agricultural economy, Congress established land-grant colleges and laid the groundwork for an agricultural extension system. The land-grant colleges offered grudging recognition to the emerging industrial revolution by introducing so-called "mechanic arts" courses to meet rudimentary engineering needs.

Vocational education at the secondary level was not introduced until the First World War, in response to an urgent need for skilled workers. At that time a Commission on Vocational Education appointed by President Woodrow Wilson proposed the establishment of vocational programs in secondary education in the form in which they exist to this day.

The Second World War ushered in further developments in vocational education. Rising agricultural productivity sharply reduced the number of farmers required to feed a growing population and freed manpower to meet industry's needs as well as those of the armed forces. The newly released manpower was high in number but low in skills. Almost overnight, the public schools reacted with emergency vocational education programs, which trained almost eight million people for industry by the end of the war.

After the war, older workers returned, but the agricultural immigrants to the large urban areas never returned to the farms. The industrial workforce was permanently expanded to new and undreamed-of proportions.

During the same period, the armed forces found a way to satisfy their swelling need for officers and technicians. They offered college-level technical courses to recruits, many of whom had no expectations of ever going to college. These were short, limited in scope, and vocational in purpose. The proof of their effectiveness was to be found in the hundreds and thousands of young men whose lives were transformed by their wartime educational experience. This experience established their capacity to do college work, the G.I. Bill of Rights furnished the possibility, and their subsequent performance in colleges, universities, and technical schools established their intellectual right to the opportunity.[2] The war-induced achievement alerted the nation to the possibilities of mass higher education. It was the first step in what has since become a continuing educational revolution.

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[1] Advisory Council on Vocational Education, *Vocational Education: The Bridge Between Man and His Work* (Washington: U.S. Department of Health, Education, and Welfare, Office of Education, 1968). I have borrowed generously from the Advisory Council's report for historical background and wish to give the Council full credit.

Increased productivity, continued prosperity, and federal mortgage insurance ended the postwar, middle-income housing shortage and triggered a race of the middle class to the suburbs. The nation entered a period of high opportunities marked by great mobility, but marred by severe displacement. While two million people who were able to take advantage of educational opportunities upon abandoning their farms were quickly absorbed into the workforce, four million others—mostly black—headed for the cities without any preparation at all. The newest immigrants to urban areas, like immigrant waves before them, took the inner-city places of those who had moved out. Lacking education, branded by language as well as racial distinctiveness, they found it difficult if not impossible to gain admittance to the affluent society that surrounded them. Such jobs as they could qualify for were often inaccessible for lack of adequate public transportation or because of outright discrimination.

The nation had not yet focused its attention on the new urban unemployed when the startling accomplishment of the first Sputnik mission in 1956 precipitated a swift and drastic overhauling of the entire educational system.

Where the major effect of the G.I. Bill of Rights on institutions of higher learning had been to increase their size and number, the effect of the Sputnik reaction was vastly to improve their quality, primarily in the fields of science and technology. "Education for excellence" became the motto of the nation's public schools. The National Science Foundation and the National Defense Education Act were the legislative vehicles; curriculum reform was the instrument. There were mighty infusions of mathematics, physical sciences, biological sciences, and language arts at all levels of instruction, beginning with Sputnik and continuing into the early 1960s. Vocational education, and the humanities, were barely touched.

Then, in the early 1960s, unemployment pushed to the fore as the key public issue for the first time since the Great Depression of the

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[2] Frank H. Bowles, "Observations and Comments" in *Universal Higher Education*, ed. E. J. McGrath (New York: McGraw-Hill Book Co., 1964).

1930s. In February 1961 unemployment exceeded 8 percent. Whether this high rate was due to slow economic growth, a deficient rate of job creation, or inadequate skills, is still debated. Whatever the cause, discussion centered on the need for immediate training programs, and in 1963 a new charge was laid down to the public schools. The charge was equal education for all. The legislative vehicles were the Vocational Education Act of 1963, followed by the massive Elementary and Secondary Education Act in the following year.

To date, the charge has not been taken up. We think it is because only truly comprehensive schools would be capable of doing so, and the four major types of secondary schools that are pleased to call themselves "comprehensive" are not that at all.

"Comprehensive" Schools — A Misnomer

In some school systems, "comprehensive" describes any high school program that offers industrial arts, typewriting, and homemaking courses in addition to the usual academic subjects. Other high schools, once academic, now call themselves "comprehensive" because they encourage pupils to seek a "work experience." Still others ship students by bus to spend half of each day in a shared workshop center for vocational activities. Lastly, there are comprehensive schools that would be more aptly described as simply multipurpose; administered by a single principal, they have under one roof sociologically and educationally discrete schools—academic, vocational, and "general."

Industrial arts and homemaking courses are certainly relevant to education, but they hardly make a school comprehensive. "Work experience" outside the school program, often on the pupil's own time, unsupervised and unrelated to academic instruction, scarcely earns the right to be called cooperative or comprehensive education.

The busing of pupils to a vocational education center that functions independently of its feeder schools is undoubtedly a convenience for school administrations that are plagued by overcrowding and underachieving students, but it does not furnish comprehensive education.

The most common type of so-called comprehensive school is the multipurpose, or tracked, school. It carries some of its students, on the first and main track, to college, but it shunts off the rest either to the vocational track, where not vocations but trades are taught, or to the so-called "general" track, a watered-down version of "education" which prepares its students neither for a vocation nor for the pursuit of higher education.

The track system tends to freeze students within the confines of their class, race, and social groups, denying all the groups the benefits of interaction and shared experiences. At least half the college-bound students in the tracked school are as ill-served as the students on the vocational and general tracks. It is the group that will begin but will not complete their college studies. Not only do the so-called comprehensive high schools fail to teach these youngsters skills, or give them a glimpse of the technological understanding of the society, but the set-up also denies them the opportunity to rub elbows with the social class and life style with which they may well have to come to terms in the long run. The tracked school also limits the vocational student's exposure to courses that might enrich his curriculum, his capacity to function well in his chosen vocation, or for that matter his ability to choose other options as opportunities emerge.

The cultural isolation of such tracking system serves in the long run to deny the very bases of experiences necessary to meet the future goals of liberal education. In fact, it promotes negative interaction amongst the students and is an affront to the very democratic processes in which we so strongly believe.

Vocational Education

It is impossible to study vocational education in the United States without realizing that, in fact, there is no "system" of vocational education; there are schools of all kinds, at all educational levels, but there is no system with a logical progression from school to school and from level to level. For sixty years vocational education has been confused with practical training required for a job and has been regarded as separate and distinct from "education" as such. It is offered at the end of a process of compulsory general education and is concerned with only a fraction of the labor force. It is associated with manual occupations and is thought of as inherently inconsistent with the ideal prospect of higher education for its pupils.

The United States public education system strives to give the student every opportunity to develop his talents at the highest possible level. But the highest possible level is always the highest formal verbal education level. The student is urged, and perhaps rightly so under the current conditions of American higher education, to prepare for college and to do nothing that might impair his ability to go there. The statement for vocational education is more often than not made in a negative fashion. We say we want vocational education for students who do not have the ability for college, yet even they are told not to take vocational courses because these might make college admissions more difficult. Since vocational education as it is now thought of is not truly education at all, and is not thought of as being preparatory for the liberal arts, only the student who is determined to become a craftsman, or *who has been given up by the educational system*, takes vocational education.

Public Education Under Attack

Negro organizations until the mid-1960s had been almost exclusively concerned with voting rights and equal access to education and facilities. The late Dr. Martin Luther King, who had the gift of getting to the heart of a problem, soon pointed out that the right to sit at a lunch counter without the funds to buy a hamburger was hardly a victory. The movement focused on the need for jobs and training and, consequently, on the quality of education. A number of remedial manpower and antipoverty programs were introduced: the Manpower Development and Training Act, the Community Work Training programs, the Job Corps, the Neighborhood Youth Corps, the Work Experience and Training Program, and others. In 1968, thirty-one out of every one thousand persons in the United States were being trained or retrained under the provisions of one or another federally funded program. With 23 percent of Negro men aged 16-24 unemployed, and others underemployed, however, the federal programs added up to a drop in the bucket. Unfortunately, most of these programs were under the jurisdiction of the Labor Department and had little effect on the public schools.

Public education came in for more than its share of criticism. Not enough, it was charged, was being done to prepare the 70 percent of American youth who do graduate from high school for a vocation—not to speak of the 30 percent who do not graduate. Thirty-eight million underemployed and ten million functional illiterates testified to public school failures. Judged by Conant's criteria—that is, holding power, post-secondary-school employment status, and college entrance qualifying scores—most city schools and many in suburbia did not measure up well. A spate of other reports, official and unofficial, in the mid-1960s accurately portrayed urban educational systems as victims of their own rigidity. Researchers came up with many significant findings about learning processes, curriculum innovations, and educational technology which could have been put into effect immediately. But top-heavy bureaucracies, outmoded administrative practices, and shortages of funds made for distressing time lags between discovery and application. Caught between their own antiquated methods and the impatience of their constituents, many schools became essentially custodial institutions—anti-educational and destructive to the learning processes, and especially damaging to nonwhite students.

As in other times of crises, interest turned to vocational education. Congress enacted legislation, and a federal commitment of vast sums of money was provided to service public school youngsters who would not go to college. In 1968 the total amount of money spent by the federal government and the states and local school systems reached almost 199 million dollars a year.

There were two new basic purposes of the new federal legislation. First, vocational education was to serve the occupational needs of all people through unified programs, rather than training them in separate programs by selected occupational categories. Second, vocational *processes* were to be used for persons with special needs. There is little evidence that either of these major purposes has been accomplished to date. Overall vocational enrollments increased from 4.5 to 6 million between 1964 and 1966, but secondary level vocational enrollment constitutes only a quarter of the total high school enrollment of the nation—even though 80 percent of our youth never achieve a college education. A 1964 Labor Department survey found that less than one-half of the non-college-trained labor force had any formal training for current jobs. Less than 4 percent of the 18- to 21-year-old population were enrolled in post-secondary vocational education, with less than 3 percent of those over 22 years of age involved in part-time adult extension courses. Yet the purpose of this legislation was to meet the need of *every person* to have formal preparation for employment and to serve the need for *continual upgrading*. The Vocational Act of 1963 was a noble gesture. But after six years it has become obvious that other alternatives might be more successful.

Learning Styles

Most American public school education is geared to the college-oriented student. This does not make sense when only two out of ten public school children will eventually graduate from college. It makes less sense when you realize that as a consequence, public schools tend to rely for results on the incentives that motivate only the most successful pupils: recognition of academic achievement, teacher and parent approval, and the like. Underlying these incentives is the principle of deferred gratification. Increased earning power, prestige, and status, the system preaches, will ultimately accrue to those who learn to postpone satisfactions and to be diligent, even in the face of tedium, difficulty, or drudgery. But not all students are willing or able—financially or otherwise—to translate the attainment of future goals into the necessity for present application.

Some mark time in school because they see no other alternative.

Others accept the long-range objectives as suitable, but have difficulty in relating them to daily tasks and decisions. Still others simply turn their backs on school and walk away.

We are all too ready to assume that the difference between the facile learners and the others resides in native intelligence. Actually the real difference probably lies in differing ability to verbalize—the best-rewarded skill in our educational system. The ability to verbalize is an important ingredient in one type of learning style. But there are other learning styles, which can be equally rewarding and would lead to a greater ability to communicate if only they can be matched by appropriate teaching procedures.

Underlying the teaching techniques that I will describe is the concept that intelligence is not fixed, as was once supposed, and that, furthermore, it can be developed by providing the child with enough favorable informational interaction with the environment, or as J. M. Hunt puts it, interaction that is "relevant to the role of early experience and psychological development."

R. W. White provides a clue to how best to achieve this. The human organism, says White, is motivated to "interact effectively with his environment," as manifested in his exploratory, manipulative, and activity behaviors. The exploratory behavior, he says, is best seen in "the organism's intense and persistent drive to respond to all kinds of stimuli—auditory, tactile, visual, esthetic, and so forth." If this is true, and I believe it is, it seems probable that situations which restrict or otherwise deprive youngsters of meaningful interaction with the environment would tend to inhibit the development of intelligence. Failure to match teaching procedures to learning style, it would then seem, could have just such an inhibitory effect on learning.

Some children are graphic learners. Others learn best through manipulation. Still others are affective. Most of these children could be engaged in good general educational programs if we borrowed the vocational processes themselves with which to engage them. All of these youngsters bear out what James and Dewey and Whitehead were saying: that youngsters do have different styles of learning, and everything possible must be provided to allow the learner to interact with his environment. Vocational education, conceived of as a tool for comprehensive education rather than an end in itself, lends itself readily to the purpose of matching styles.

Urban children particularly need the kind of opportunity that was offered on the rural farm—to take things apart and put them together, to handle, feel, discover for themselves how things work. These opportunities were the very bases for many farm children later succeeding in college. Often in serving children whose styles are not verbal we lose sight of the fact that "doing" is only the beginning. Thinking follows; feeling follows. Doing is the specific from which later generalizations will follow, and vocational education can contain a high proportion of doing.

Reaching right down into the grade school, vocational education can, for example, be employed to help the child with reading difficulties. It can provide the experiental base we so readily assume in elementary education.

The traditional school system supplies children having reading difficulties with another text, a special teacher, and in effect intensifies the application of the same techniques and materials which have already given him trouble. A truly comprehensive school, taking advantage of the possibilities that are inherent in vocational education, would on the other hand allow the child to work in a workshop with type and simple printing presses. Instead of reading page after page of printed material, he would actually print one.

Education need not be painful and should not be passive, especially for the children who resist traditional methods. The moment of learning should be active, intense, and spontaneous, as when Maria Montessori's four- and five-year-old pupils "burst spontaneously into writing," without having been "taught" to do so. Matching teaching procedures to learning styles can help keep it that way, and this can be done through the judicious use of selected vocational processes as pedagogical vehicles. They will require the student's active participation and will greatly enhance his motivation to learn. They will help to relate his education experience to any number of adult roles as well without diminishing the quality or rigor of the educational program.

At present, however, the most important vocational processes and resources are tragically misused in the public schools of the United States. The very structure of the public school framework serves to box in vocational education and vocational educators, denying them the possibility of making their maximum contribution. The situation will be perpetuated unless we recognize that the school can do justice to its constituency only if it integrates the vocational processes in the continuum of education, beginning early in elementary school and continuing through at least fourteen years of schooling.

The need, it should be noted, is to relate the vocational processes to the academic disciplines and not the other way around. There is no need for related math, as it is now taught to vocational students, only for math; no need for related science, but for science; not for related English, only for English. We do need—and need badly—

related shops, labs, drama departments, and graphic arts, to name just a few examples.

Comprehensive Education

The idea is not simply to fit vocational education into the existing system but to make it the principal feature of a new system. The plan depends upon an extensive redesign of the secondary school curriculum, but it is a practicable plan. Aspects of it have been tried by the Ford Foundation in thirty schools in twenty cities, and early indications are that they work. These pilot curriculum experiments are in all grade levels from kindergarten through college and fall into two principal categories.

The first is designed to make vocational-technical education more relevant to the needs of a modern technological society. The second seeks to end the traditional separation between vocational and academic education and make both more meaningful—and accessible—to a broader range of students. The oldest experiment is eight years old; the newest was initiated in 1967.

The education envisioned by these grants is one that opens rather than closes doors; that prepares students for work in broad career fields (and perhaps more than one), not for a narrow range of specific jobs; that does not cut students off from higher education at some point in their education but allows them to proceed after high school either to good jobs or to further education; that does not separate subjects into rigid compartments but is strongly interdisciplinary and seeks ways in which interconnections can be made between vocational and academic work; that rejects a system of academic apartheid wherein the presumed sheep and goats follow wholly different paths, but instead creates a broad highway upon which all may travel as far as their talents and desire will permit.

What has come through loud and clear from the studies is the reaffirmation of oft-repeated principles: Learning is a process of engaging people in the processes, and education is relevant experience coupled with purposeful activity. It has also become clear that a coordinated comprehensive program offers ample opportunity for a variety of teaching methods, and of learning styles, and so is more congenial to academic achievement by the nonverbal pupil than traditional, abstract-verbal programs.

The results thus far lend support to my thesis that we need to create in our elementary and secondary schools a coordinated curriculum where vocational and general education reinforce each other; where carefully designed programs prepare youth for advanced training for such new career fields as are developing in medical technology, the graphic arts, and a host of paraprofessional occupations; and where students are taught general work skills that are transferable from one occupation to another.

Under such a system, no student would be rejected outright at any stage of his education—though he might be directed at least temporarily to more modest objectives when there is reason to believe his career choice offers little probability of success. In such a system, all students would be considered potential candidates for post-secondary education and training, and all would have several options at the time of graduation from high school. They would be prepared to work at simple trades and occupations, to go to a two-year community or junior college or technical school, or to move right into a four-year college. Even the choice of a two-year college or technical school would not cut off options. At the time of graduation from one such school, the student would be prepared to work at a technical level or to transfer to a four-year college in order further to develop his skills and enrich his liberal education.

An effective comprehensive program would begin in elementary school where youngsters would be introduced to the concept of choice between achievement through verbal or abstract performance and achievement through manipulation and demonstration of real objects. Both processes would be designed to arrive at the same learning goals. Each unit of work in the language arts, for example, would begin with a self-directed experience matched to individual readiness levels. Eventually all the children would reach the same goal, verbalizing or otherwise demonstrating what they have learned—responding in different ways, at different times, in accordance with individual abilities and talents. Throughout the elementary grades, there would be a continuing examination of how man uses work for self-support, how major occupations employ knowledge, and how productivity is related to a variety of abilities. A major objective of elementary education would be to discover the talents of each child and demonstrate their relationship to the work world.

At the junior and high school levels, academic and vocational teachers would be teamed for the purpose of reinforcing each other's aims by coordinating the curriculum which they will both work to promote.

Vocational guidance would be introduced early in the middle-school years. Its aim would be to acquaint the students with the workings of industry and commerce toward the end of matching their talents with their career objectives. The vocational guidance department would, for example, provide an annual career-objective analysis for each student, based on the diagnosis, discussions, predictions, and evaluations of teachers, examinations, and computers. These analyses—really employment plans that are revised annually—would enable the student to appreciate the relevance of his school performance to his career possibilities. Like the college-bound student who even now is familiar with the ins and outs of college opportunities, the vocationally oriented student would be encouraged to know where jobs of interest to him are to be found, the types of advanced training that are available, the requirements for admission at appropriate schools, and whatever peculiarities attach to his field of interest.

Such a system would depend on a complete and continuing invenetory of the composition of the workforce and employment market, descriptions of requisite skills for specific occupations, and pertinent information about performance criteria in each.

This new input is particularly appropriate for the middle-school years, considering what we now know about early adolescence. Research experiments done by Taba and others have shown it is possible to teach a good deal more mathematics, physical and biological sciences, and foreign languages earlier in the elementary grades, and later in the high school, than we now even attempt to offer in the middle-school grades. If ever there was a time in a continuing curriculum for the student to be encouraged to look inward, to identify his talent, to take stock of his assets, to test himself for future decisions, it is in early adolescence. Art, music, literature, guidance, and the like, belong to the middle school, and yet paradoxically it is during these years of emotional and physical change that we offer the child mathematics, foreign languages, and the physical sciences. Most middle-school youngsters will tell us easily all the subjects they dislike, all the activities they are poor in; very few know what it is they do like to do, what their talents are, or which tasks they are able to perform well.

To fully implement the idea, cooperating community colleges and technical institutes would be needed to offer programs that articulate with the secondary school experience. Occupational training in such schools would lead to an associate degree or to a certificate of achievement in a broad range of subjects. Cooperating technical schools would also serve to bridge the gap between the secondary schools and state colleges and universities, plotting avenues toward still further education for all those who are eager and able.

The most likely immediate beneficiaries of a comprehensive system would be culturally and economically deprived American students. A serious shortage of qualified nonwhite manpower at the technical level has been dramatically illuminated by an avalanche of materials and reports on the manpower needs in engineering, science, medicine, and the social sciences. These same reports and others have documented the fact that Negro manpower, above all other, has been largely untapped by contemporary educational techniques. Trapped by the traditional view that the central purpose of higher education is satisfied by the production of liberally educated men and women, Negro colleges have been among the most delinquent in overlooking the necessity for career training, but they are by no means the only offenders.

I want to emphasize that comprehensive education is of value to students whose primary interest may be the liberal arts. Let me try an example of what I mean. A youngster who is provided with an opportunity to design, to fabricate, test, and report on an item goes through a number of behavioral changes not unlike the processes within the liberal arts. Surely few would say that the mere use of the workshop rather than an art classroom would change the purpose of an opportunity to express oneself artistically. What ever the medium —paint, metal, wood, music, ceramics, paper—knowledge of the properties of the materials, the mathematics of design, the esthetic experience, the bases of the social and humanistic message could all be present. The degree of creativity, of course, would depend on the particular task assigned, but on this level at least the vocational processes surely could be used as a great tool in liberating the mind for self-expression.

We might probe still deeper. A basic fault in our present theory and practice of education in the United States is the idea that vocational education not only stands apart from humanistic studies but is also a dull body of specific, technical facts and manipulative functions, and that only. Some educators are inclined to emphasize specific vocations or skills in preparation for life in the work world, leaving the acquisition of more general principles to induction from experience. Others tend to emphasize general education, leaving specific skills to be acquired on the job. Both means command supporters at all levels of schooling. The problem is further complicated in our confusion of the concepts of "training," "education," and "experience." If we agree with Garth Mangum's definition of training as an instructional function, education as a learning process, and experience dictating the mixture of training and education, the liberating role of vocational education becomes clearer. The processes themselves are introduced as necessary to meet any assumed prerequisite for liberal education. That is to say, the psychological, sociological, philosophical, and operational questions of to what extent the processes of education can be generalized for all students become clearer.

To say that vocational education must become the principal core of modern curriculum is to say only that the remainder of the curriculum must be more fully and more consciously related to the place of individual talent in human life.

Vocational processes as pedagogical vehicles are not only relevant to the physical and natural sciences but also as a basis for the liberal arts. Beyond the self-liberating qualities of the processes themselves and their powerful stimulus for greater understanding, vocational skills are clearly the education which transmits from one generation to the next the heritage of the past and the seeds of new ideas yet to be. It surely reflects the central reality of modern life and a real basis of intergenerational communication. If we agree that "life adjustment" is still the goal of education, then paramount in such adjustment must be the reckoning with the school's responsibility to identify the student's work-world talents so that the liberal arts have a greater meaning in his identified life-style.

Liberal education as we conceive it should be more than an education for intellectual pursuits and could embrace technical education. An educational program can and should at one and the same time and at all levels furnish its students with the wherewithal for fuller lives and for fulfilling, productive careers.

Alfred North Whitehead said this so clearly: "... culture is activity of thought, and receptiveness to beauty and human feelings. Scraps of information have nothing to do with it. A merely well-informed man is the most useless bore on God's earth. What we should aim at producing is men who possess both culture and expert knowledge in some special direction. Their expert knowledge will give them the ground to start from, and their culture will lead them as deep as philosophy and as high as art."

High school graduates who prefer to terminate schooling after high school—a declining number we would hope under this system—would be invited to participate in cooperative work-study programs during the last year or two of school to prepare them for full-time employment upon graduation. An increasing number, however, would go on to higher education. Until now two-year colleges that are part of a unified secondary system or a state or county university system have had the best results in relating their vocational programs to those of feeder high schools. It is to be hoped that in the future more two-year colleges will take steps to achieve similar results.

Even now American four-year colleges have begun to appreciate that a larger portion of the population can profit from study at the college level than had been earlier assumed. The new aspirants for a college education, however, will be more diversified than previous generations of college students, and many among them will have had very limited success in high school.

Nevertheless, many will argue from a narrow definition of higher education, bolstered by a rigid and simplistic notion of its function, that opening the sluice gates to admit as many newcomers as possible must be accompanied by deterioration in the quality of education. Flexibility, alternate programs, and multilevel goals, implicit in the educational system I have described, can give the lie to such arguments, for comprehensive education multiplies and broadens the pathways to higher achievement, offering promise of better lives and ultimately of a better society in which quality of all kinds can flourish.

Teachers

It should be clear that to achieve our purposes the highest priority should be given to the training and developing of a new breed of educator, vocationally competent and academically accomplished. There is no single problem of greater urgency, particularly in the field of urban education.

Much has been written about the qualities, skills, and commitments essential to good teaching. An additional attribute was proposed some years ago by Douglas McGregor. In his capacity as president of Antioch College, he advocated that college faculty should alternate between teaching and other work. Being on "intimate terms with business and industry, government agencies, unions, social and professional agencies," he said, would make for sounder teachers. "Not only would they be in a better position to relate theory to practice, but they would soon begin to overhaul some theories. . . ."

If school teachers had a visceral appreciation of the world in which their pupils lived, they would have a better conception of their teaching roles. Such appreciation can be gained by living experience. Cooperative industrial education for teachers is, therefore, critical for the new breed of educator who will be needed in the comprehensive school.

The comprehensive school will demand a continuing dialogue between academic and vocational teachers. A common set of experiences must be considered a prerequisite for such a dialogue. As matters stand now, the preparatory experiences of academic and vocational teachers are worlds apart. Beyond his undergraduate studies which include a prescribed number of courses in education and some practice teaching, the high school teacher of academic subjects in New York City, for example, is required to have a Master's degree, nothing more, as preparation for his vocation.

The vocational teacher, presumably to compensate for the shop experience required of him, is excused from studying for his Master's degree and even from acquiring a Bachelor's degree if he is willing to sacrifice some salary increments. Two years of college work is all he needs in addition to seven to nine years of work experience to acquire a teaching license in New York, the nation's largest city. After acquiring seven to nine years of work experience, most workers who become teachers are too far removed from the spirit of school and too tired to acquire more than the minimum two years of college.

There is no doubt that the work experience the vocational teacher brings to his job is indispensable to his performance in the classroom both for the exposure it has given him to the worker's milieu and the skill it has imparted. Nevertheless it seems likely that the mission of education rather than trade instruction would be better accomplished with a different mixture of college and work experience.

For the teacher of academic subjects, school experience should be supplemented by some work experience, continually renewed throughout his teaching career. An intimate knowledge of today's industrial and business complex, proficiency in dealing with the man-made environment, and an understanding of the problems of the work world are necessary skills for all, especially urban teachers. Such competence can be acquired only through actual experience, and, therefore, work experience would be a basic element of all teacher-preparation programs. I want to differentiate here between work experience related to educational processes and work experience to meet economic needs.

Without prescribing a teacher-training program, it is appropriate to take note of the deep prejudice harbored both by the vocational teacher, who feels his industrial experience compares favorably with the academic teacher's more extensive schooling, and by the academic teacher, who is often contemptuous of manual skills. The academic-vocational gap will close when teachers of all subjects, working in reconstructed schools, are prepared to adopt alternative means of inspiring learning and to come to appreciate the genuine values that can be derived both from vocational and academic education and from first-hand acquaintanceship with the world of their students.

Summary

Comprehensiveness insures the availability to all pupils of the same range of knowledge. Through different activities and in different classes, where teaching procedures are matched to learning style, all pupils move at their own pace and in their own way to the same destination. That destination is a multioptional jumping-off point to new levels of education and to the world of work. There are no separate goals in comprehensive education, but alternative means of reaching the same options.

If students are not motivated toward the acquisition of adequate education, we shall face an increasing waste of our human resources, continued riots in the streets, and a general deterioration of society. Except for the relatively small number of students who even now seek learning for its own sake, students will be motivated to learn only if their schooling is relevant to their lives, to their ambitions, and to their styles of learning. Vocational education speaks to the need for relevancy. The essential question is not whether we should merge general and vocational education but rather how we can best exploit vocational education techniques in the interest of effective teaching.

Society has rarely been disappointed when it looked to the educational profession for the solution of some of its most pressing problems. I would urge that like our predecessors we discharge with vigor and effectiveness our responsibility for our own society. We must create a new educational system. The need is urgent, and the capability is at hand.

Chapter 13

INTIMATIONS OF THE FUTURE: A SUMMARY

J. Kenneth Little

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J. Kenneth Little

It has been more than fifty years since the passage of the historic Vocational Education Act of 1917, more commonly known as the Smith-Hughes Act. This legislation was a landmark in the development of the relationships of the federal government to the educational systems of the states. It provided a federal-state partnership in the financing of educational programs at less than college level and established a pattern and precedent for much subsequent federal participation in educational programs of the states. It was not until 1963, however, that swift technological advance and changing economy brought a fundamental reconsideration of the nature and needs for education and training for employment. New approaches began with the passage of the Vocational Education Act of 1963. In the following six years, federal legislation further revamped the purpose and scope of federally-sponsored vocational education programs, and restructured those programs to meet the individual needs and socio-economic urgencies of an increasingly urban and technological society. Throughout this more than half century the federal government maintained support of vocational education while eschewing similar assistance to general education. This fact bespeaks an underlying public conviction about the relation of man to his work, a conviction epitomized by the following excerpt from the *Report of the Advisory Council on Vocational Education*, 1968:

> Vocational education is not a separate discipline within education, but it is a basic objective of all education. . . . Vocational education cannot be meaningfully limited to the skills necessary for a particular occupation. It is more appropriately defined as all of those aspects of educational experience which help a person to discover his talents, to

> relate them to the world of work, to choose an occupation, and to refine his talents and use them successfully in employment. . . . Some type of formal occupational preparation must be part of every educational experience. . . . There is no longer room for any dichotomy between intellectual competence and manipulative skills and, therefore, between academic and vocational education.

The authors of the preceding chapters view the present conditions of the nation's programs of education and training for employment from different perspectives and with different expectations. Those who have grown up with and have given their professional lives to the development of vocational education programs write with understandable empathy for, and pride in, the vocational education establishment.

The authors who measure the achievements of vocational education programs strictly against the economic, sociological, or manpower needs of society are less charitable, and stress the gaps yet to be filled. While but a few of the chapters contain forecasts of coming developments, the discussions as a whole reflect certain developmental trends and intimations of the future.

It would be redundant to summarize here the discussions of the preceding chapters. Rather it is the purpose of this chapter to draw ideas and viewpoints presented by the galaxy of contributing authors and present them as a synthesis of trends in vocational education. Such an attempt involves editorial risks for which the present author assumes full responsibility. Fortunately, the presence in this volume of the full text of each author's presentation provides ready comparison of the viewpoints of the author and those selected for comment in this chapter.

Barlow, Swanson, Evans, and Micheels have been wheel-horses in the development of vocational and technical education for many years. Their names appear on Commissions and Task Forces which have shaped national policy in this field, and all have had leadership positions in directing substantial programs of vocational and technical education. From this quartet of veteran educators, the reader senses feelings of satisfaction over the fact that vocational education occupies a central position among national concerns of the day. Barlow welcomes the idea that education for employment should be in the mainstream of the educational enterprise and counts the shift in emphasis from training in specified occupational fields toward serving occupational needs of individuals both a significant educational advance and a deserved recognition of the long-time efforts of vocational education.

Swanson contends that the aims and objectives of vocational education are served best when vocational programs are directed by persons who have both personal stature and high rank in the administrative hierarchy of federal and state governments. He pleads that programs of training and education for employment should emanate from educational agencies. It will be interesting to see whether education for employment will move closer to the mainstream of all education and, if it does, whether such a welding of purpose and program will dissipate a long-smoldering divisiveness between academic and vocational educators.

Evans strikes at the heart of urgent and persistent needs in vocational education. His recommendations for teacher-education programs and staffing practices have merit for all types of educational institutions. Teachers are now prepared on a pattern which emphasizes subjects and disciplines more than areas of application, scholarship more than workmanship, preparation for additional schooling more than preparation for non-school types of activity. Evans suggests teacher-education programs in which certification is based upon criteria of teaching effectiveness, meaningful employment experience, and improved in-service training. He also recommends that salary schedules reward demonstrated gains in knowledge and skill rather than the accumulation of course credits. His emphasis upon interchange of work experience and school experience by both student and teachers sounds a note being heard frequently and insistently.

Micheels and Bensen's description of current pioneering activity in curriculum development and innovative instructional programs at work in scattered places through the nation gives refreshing glimpses of the possible in improving learning outcomes not only in vocational education but in all parts of the educational enterprise. Indeed, the total impact of this panorama of educational experimentation is to reaffirm the essential unity of education purpose and process, and to question further the usefulness of the time-worn distinctions between programs labeled vocational and those labeled academic. The bright hopes engendered by the promising developments described should not mask the fact that much of the educational system falls far short of the creative efforts exemplified by these experimental programs.

Interestingly, the authors point out that the basic concepts of the experimental programs are not new. Technological advance is spawning new educational media; new forces are becoming interested in the educational process. In the learning society of the future, education will be carried on under many auspices, and programs and processes of educational institutions will be meeting new tests of their effectiveness. One bright-colored thread runs through this stimulating discussion. The educational system, its teachers, and its students, must have clear knowledge of specific behavior outcomes expected, multiple media for achieving the purposes, and relevant criteria for knowing when the purposes have been achieved. Curricula and instructional programs so designed are at least a part of the answer to the quickening quest for relevant education—vocational or other.

Burt, Sharp, and Mangum concentrate on shortcomings of present arrangements for education for employment. Sharp stresses the very belated and still inadequate activity in behalf of persons who have long occupied pockets of poverty and islands of neglect amid a generally affluent society. She emphasizes that both schools and society have a part in helping all people make satisfying and productive contributions to our economic life. Her stress upon the need for the application of knowledge and skills by persons drawn from differing backgrounds of experience, and from differing agencies and institutions, is timely. The tendency for legislative and educational provisions to follow formal, institutionalized patterns leads to practices that obscure the problems and often prevent adequate response to the problems. It is curious that, while vocational education is striving to dispel an image that casts it as a program for "academically untalented" students, some prestigious universities are identifying with programs directly programmed for students who are "academically disadvantaged." Sharp's analysis brings into clear relief the fact that problems of the disadvantaged do not yield to standard practices, single measures, or quick remedies. The adage that "an ounce of prevention is worth a pound of cure" is aptly applied. Two concrete suggestions deserve highlighting: First, no child should leave school until he has acquired the basic learning skills . . . reading, numbers, communicative; and second, no school or training program should be without an effective placement service.

Mangum is not sanguine about the ability of institutionalized programs of vocational-technical training to respond quickly and adequately to changing needs of individuals and of the occupational structure. He takes issue with those who consider the attainment of all educational objectives to be the sole province of the educational establishment. He contends that institutionalized programs, rather than concentrating upon the needs of individuals and the larger society, tend to become self-serving. His account of the interplay of forces within and between government agencies administering programs of training for employment reveals unresolved questions about educational philosophy, educational finance, and the role of the federal government in education. Mangum's suggestions about governmental incentives and mechanisms to elicit greater responsiveness to educational and training needs is constructive, but falls short of designing the better systems of education and training for employment that he believes are needed.

Burt finds reason for optimism in the growing participation and constructive involvement by industry and business in employing and training disadvantaged and chronically unemployed youth and adults. He cautions, however, that educators must learn to use more effectively the desires and energies of industry representatives. The new initiatives by industry and its spreading involvement in the "War on Poverty" is enhancing cooperative action with schools and providing new approaches to the solution of the problem of undereducation and unemployment. He contends that diverse sponsorship of programs frequently provides new methods, techniques, and opportunities for types of experimentation that institutionalized programs would find it difficult to attempt. Such programs, however, should meet standards of cost-effectiveness that are applied to any other program. The nature and growth of nonschool-sponsored programs are impressive and from these developments may come answers to the question of what components of vocational education belong with schools, what components with on-the-job training, and how the two types of experience are effectively combined. Burt's plea for assigning full-time school personnel to the function of establishing and maintaining liaison with industry is congruent with the emphasis other authors placed upon establishing effective occupational placement services.

O'Hara and Tiedeman and Moss and Stromsdorfer provide the insights of research experts and demonstrate the dividends of research and development techniques when soundly applied.

Tiedeman foresees a new era in vocational education. He calls for systematic use of occupational information toward achieving mature occupational decisions. His conceptualization of the occupational decision-making process is elaborately developed, and his translation of his concepts into computerized operations are imaginative. His point that occupational "data" become occupational "information" only through "mediation" by the user who incorporates the data within a personal set of experiences and goals is a useful guiding principle for counselors. The computerized program designed by Tiedeman provides opportunities for individualized confrontations with the major elements of realistic occupational decision-making. The distinction between "data," "information," and "knowledge" is receiving renewed attention among educational planners. Peter Drucker, in his volume *The Age of Discontinuity*, has recently suggested that "information" becomes "knowledge" only when the information has applicational context.[1] This idea recalls Alfred Whitehead's assertion that "education is the art of the utilization of knowledge." Whether or not his "information system" becomes a breakthrough to new levels of effectiveness in vocational decisions, only time will tell. Meanwhile, his system for vocational decision-making may be a preview of the ways in which individuals may be making vocational decisions in a society enchanted by technological advance.

Moss and Stromsdorfer report the state of the art in the evaluation of vocational-technical education, an art which challenges the best of researchers and research techniques. To persons who emphasize education's inherent values, the evaluation of educational outcomes is theoretically either impossible or absurd. Certainly, the authors' review of current studies is enough to discourage the amateur investigator. Heartening parts of this discussion, however, are the observations that recent studies are showing decidedly increased sophistication in conceptual and methodological aspects of the research, and the helpful delineation of cautions and suggestions to prospective researchers in this field. Research as a funded function of vocational-technical education won approval only recently. Industry and business invest strongly in research and development activities designed to evaluate and improve their products and processes. Curiously, education, the biggest business of the nation, has not had the resources nor has it been required to conduct continuing research upon the evaluation of educational outcomes. We may now stand on the threshold of such demands.

Following Sputnik, this country embarked upon strong efforts to increase its supply of highly qualified scientists and engineers. More recently the nation has turned its attention toward the needs of the much larger number of persons who leave the school system between the ages of 16 and 20, some of whom are described as "disadvantaged." In preparing these people for transition to occupations other than the occupation of "going to school," the long-standing practices of other countries offer useful suggestions. Specific practices may not be as adaptable to our side as the underlying philosophy which defines the roles of government, employers, schools, and trainees. Dufty's discussion of technical education as carried on in some other countries has particular merit in suggesting feasible alternate educational paths for students to move to "higher education" through programs of technical studies when appropriate performance standards are used. Some educational observers are predicting a shift from curricula organized around disciplines to educational programs organized around broad problem areas in which knowledge is utilized —an approach now discernible in the organization of research activities. The emphasis upon performance standards as measures of educational attainment also deserves attention. The greater participation and influence of the federal government in the education of its citizens may eventually draw educational practices in the United States closer to some of those used in some European countries. Meanwhile, European countries are moving toward educational goals and practices of the United States that seem needed by them.

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[1] Peter Drucker, *The Age of Discontinuity* (New York: Harper & Row, 1969). Part IV of this volume describes "The Knowledge Society," a provocative discussion of the interaction between technological change and educational processes. Persons interested in education and training for employment will find Drucker's thesis stimulating, disturbing, or both.

Feldman attempts the design of a new educational program. His redefinition of the comprehensive school to encompass the full range of human talent and his stress upon respect for individual learning styles will find warm support among many educators. His call for teachers who have greater maturity and life experience including nonteaching occupational activity also will find ready public response. In a world in which skill in the application of knowledge is becoming the strongest component of all occupational careers, the marriage of vocational and general education may bring strength not now present in either. Feldman's future-facing viewpoints are echoed in Drucker's *The Age of Discontinuity*:

> The greatest weakness of the schools today, and the one youngsters suffer most from, is this verbal strait jacket. . . . Few things are as badly needed in growing up as the sense of achievement. In the academic disciplines a student cannot perform. He can only show promise. All he can do in the schools in the verbal area is to repeat what somebody has already done or said. . . . The problem of the schools . . . is not a matter of working harder and of doing more of what is being done today. What we have learned in respect to all work applies to the school as well. We need to work smarter.

Feldman has specified the building blocks required by an education system which will do its work "smarter."

Such are highlights of viewpoints expressed by authors of this volume. Each author has sung his part. Is there a melody? What message does the volume as a whole convey? The statement that follows resembles a personal credo about vocational education. Much of it, however, is based on the stimulating and provocative viewpoints of the authors contributing to this volume.

A key role of vocational education is to provide that variety of educational choice and chance which is essential to the development of human potential. Institutions responsible for vocational education at post-secondary levels must enjoy a flexibility of program and purpose that is consistent with adult viewpoints about and uses of education. These schools are service stations of knowledge and skill. They should be open to all and serve purposes as broad as the range of human vocations and avocations. They should be fountains of educational opportunity to which many will return throughout the productive years of their lives.

The ideas of the open-door policy and the philosophy of the multiple chance in education are as American as the educational system itself. We must guard against mistaking failure to learn for ability to learn. History is replete with mistaken judgments about the potential of people. We are only now beginning to see more clearly some of the conditions essential to learning to learn. These new insights stress the need for greater professional skill in the development and use of instructional materials and in arranging the conditions for individual learning. The human being at any age has great capacity for understanding when he is approached on his own terms, in his own words, and at the appropriate stage in his development.

The programs and personnel of the vocational education system must grow in strength with the rising level of education among the people it serves, with the expansion of knowledge, and with the needs of an expanding economy. But the purposes of vocational education are not well served if it copies the academically-oriented institution which serves but a fraction of society's needs. The excellence of vocational education should be measured by quality of its performance in meeting its own objectives—that of serving the needs of the majority of the people who become employed in the majority of the jobs.

The need is not simply to extend college programs as we now have them to a larger group of youth. The need is to make the basic educational program relevant to the lives and occupational careers of youth for whom college degree programs are neither attractive nor desirable. The development of specific occupational skills is an important part of this program, but less important than the cultivation of the general competence and attributes that make youth employable, promotable, and adaptable in a changing occupational world.

Post-high school education will build on the pattern of adult education, emphasizing the career interests of adults and offering work-study opportunities, offering studies of live issues that are important to the daily responsibilities of citizens, and providing chance for creative expression in many vocations. It is just possible that participation in adult-oriented programs dealing with adult problems in association with adults may prove the effective way to usher youth into adult responsibilities.

The following specific implications for programs of vocational education are evident:

1. The problem area is in the period between mid-high school and mid-college. The target is to meet the needs of the three-fourths of American youth who leave the educational system during this problem period and who enter occupations in the middle range of desirability.

2. The commitment is to an educational program which differs from those now offered not so much in its substance but in its focus and relevance to the needs of youth who make early transition from school to work.

3. The call is for teachers who know ways to make their specialized knowledge palatable and relevant to such youth; for counselors who know as much about jobs as they do about colleges and universities; for schools that take as much pride in records of successful job placement and progress as in dean's honor lists.

4. Occupational preparation of the future will not only prepare for employment in the initial job but will widen the range of jobs for which the learner may qualify.

5. The need reaches beyond the powers of the educational system. Action programs must reach to the area of employment opportunities for youth of differing aptitudes and achievements. We must learn more about how much and what kind of training our work force actually needs, when and where this training is best given, and how the costs of such training should be shared. Education and training is life-long and proceeds under many kinds of auspices, including self-education.

6. School systems now engaged in action programs are providing more exciting information and, in my opinion, greater strength to vocational and technical education programs than much of the current research. It does not take the skills of a research expert to describe better educational targets and the conditions required to meet them. Frequently, perceptive teachers need only the time, resources, and incentive to put into practice what they already know.

7. Well-conceived work-study programs will multiply. The primary value lies in the educative result of the work-experience itself. There is merit in the suggestions now being offered for a two-year experience in national service for all youth in which the primary obligation is useful work. In such a setting youth may gain insights into the practical relationship of learning to earning that he comprehends but dimly when his activity is confined to the classroom only.

8. New educational media will add to the resources for individual

learning both in school and throughout life. The egg-crate schoolhouse of today will bear as much resemblance to the learning center of tomorrow as the Spirit of St. Louis bears to Apollo 11. Less attention will be given to certificates based on time spent in school; more attention will be given to learning powers and performance. Federally-sponsored learning institutes will take their place beside national health institutes and other experimental laboratories.

9. The fulfillment of the educational needs of people and nation goes beyond use of quantitative measures such as adding to the number of years of schooling, increasing the number of counselors, and providing more dollars. The problem demands changing the quality of the educational experience, greater involvement of the student in shaping his own learning, extending the range and types of learning activities, both in and outside the classroom, redefining the role and qualifications of teachers, and placing new values upon preparation for work as a primary outcome of the educational process for all students at all levels of the educational system.

Finally, human problems seldom yield to neat solutions. We move forward by making adjustments to a continuing process of change—for change is the one real, hard fact of life. Surely all of us have work to do in designing valid, workable, and changing ways to make adjustments in education and employment that will bring to all people both satisfying learning and satisfying earning, and so a satisfying chance for the good life.